

MAD
PROJECT ID:
WITH: N/A

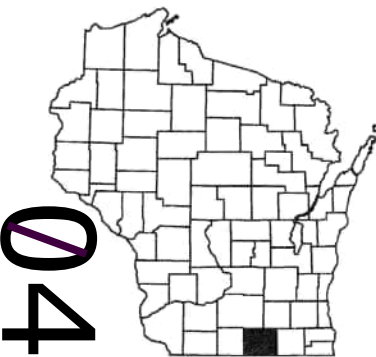
3614-00-78

COUNTY:
ROCK

NOVEMBER 2026
ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 78



DESIGN DESIGNATION

A.A.D.T.	2026	=	310
A.A.D.T.	2046	=	330
D.H.V.		=	
D.D.		=	
T.		=	3.5%
DESIGN SPEED		=	40 MPH
ESALS		=	

CONVENTIONAL SYMBOLS

PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
	STORM SEWER
	TELEPHONE
	WATER
MARSH AREA	UTILITY PEDESTAL
	POWER POLE
WOODED OR SHRUB AREA	TELEPHONE POLE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

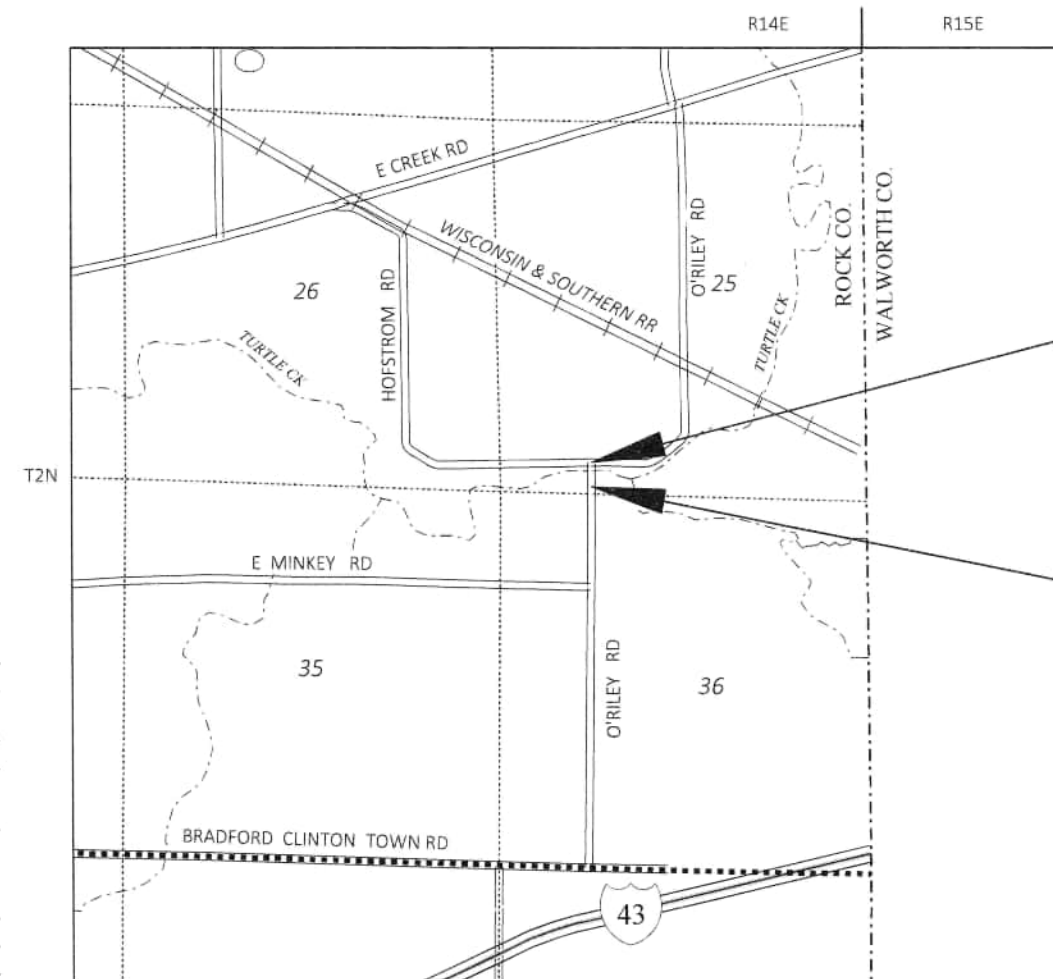
TOWN OF BRADFORD, O'RILEY RD

TURTLE CREEK BRIDGE B-53-0390

LOC STR
ROCK COUNTY

STATE PROJECT NUMBER

3614-00-78



END PROJECT
STA 11+18.83

BEGIN PROJECT
STA 6+80.00
Y = 237,207.43
X = 555,780.57

LAYOUT
SCALE 0 0.5 MI
TOTAL NET LENGTH OF CENTERLINE = 0.083 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN
COORDINATE REFERENCE SYSTEM (WISCRS), ROCK COUNTY,
NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID
COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES
ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED
ELEVATIONS ARE BASED ON GEOID 18

STATE PROJECT

3614-00-78

FEDERAL PROJECT

PROJECT

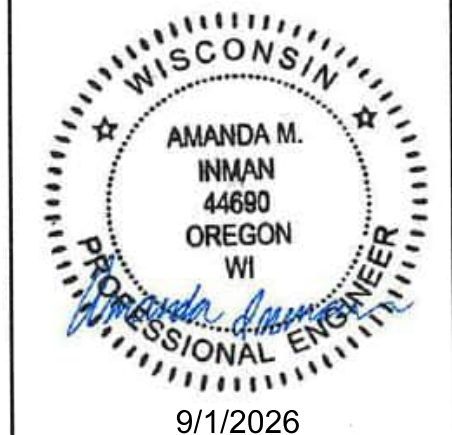
CONTRACT

ACCEPTED FOR
ROCK COUNTY

Date: 8/31/26
(DIRECTOR OF PUBLIC WORKS)

ORIGINAL PLANS PREPARED BY

AYRES



DATE: _____
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AYRES
Designer	AYRES
Project Manager	ZACHARY PEARSON
Regional Examiner	SW REGION
Regional Supervisor	DELLA KOENIG

APPROVED FOR THE DEPARTMENT

09/01/26
DATE: _____
(Signature)

E

GENERAL NOTES

NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT LOCATION THAT ARE NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES.

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT IS TO MEET AN EXISTING PAVED SURFACE.

TRAFFIC CONTROL LOCATIONS WILL BE CHANGED/MODIFIED BY THE ENGINEER IN THE FIELD.

ALL SIGN LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

NO TREES OR SHRUBS SHALL BE REMOVED UNLESS DESIGNATED FOR REMOVAL BY THE ENGINEER.

PROTECT FROM DAMAGE AND COMPLETE SHOULDER WORK AROUND ANY EXISTING SIGNS OR MAILBOXES THAT ARE TO REMAIN IN PLACE.

RESTORATION OF EXPOSED SLOPES AND DITCHES SHALL TAKE PLACE WITHIN 7 CALENDAR DAYS AFTER FINISHED GRADING IS COMPLETE.

WETLANDS ARE PRESENT IN THE PROJECT AREA. DO NOT DISTURB WETLANDS OUTSIDE THE PROPOSED SLOPE INTERCEPTS.

IF AN EXISTING SIGN IS TO BE REMOVED AND REPLACED WITH A NEW SIGN, DO NOT REMOVE THE EXISTING SIGN PRIOR TO INSTALLATION OF THE NEW SIGN.

THE LOCATIONS OF EROSION CONTROL ITEMS SHALL BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

HMA UNIT WEIGHT: 112 LB/SY/IN
TACK COAT APPLICATION RATE: 0.07 GAL/SY

ABBREVIATIONS

A.D.T.	AVERAGE DAILY TRAFFIC
ATMS	ARTERIAL TRAFFIC MANAGEMENT SYSTEM
BM	BENCHMARK
BOC	BACK OF CURB
BTWN	BETWEEN
C&G	CURB AND GUTTER
C.E.	COMMERCIAL ENTRANCE
CONST	CONSTRUCTION
CP	CONTROL POINT
CTR.	CENTER
D.D.	DIRECTIONAL DISTRIBUTION
D.H.T.	DESIGN HOURLY VOLUME
DMS	DYNAMIC MESSAGE SIGN
EB	EASTBOUND
EXIST	EXISTING
GALV.	GALVANIZED
HMA	HOT MIX ASPHALT
H.S.	HIGH STRENGTH
ITS	INTELLIGENT TRAFFIC SYSTEM
MAX	MAXIMUM
MIN	MINIMUM
NB	NORTHBOUND
NOR	NORMAL
PC	POINT OF CURVATURE
PCC	POINT OF COMMON CURVATURE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVT	PAVEMENT
R/L	REFERENCE LINE
REQ'D	REQUIRED
SB	SOUTHBOUND
SYM	SYMMETRICAL
T.	PERCENT TRUCKS
TCC	TRAFFIC CONDITION CAMERA
TYP	TYPICAL
VAR	VARIABLE
WB	WESTBOUND
Wt.	WEIGHT
X-WALK	CROSS WALK

PROJECT CONTACTS

ROCK COUNTY PUBLIC WORKS
DUANE JORGENSEN
DIRECTOR OF PUBLIC WORKS
3715 NEWVILLE ROAD
JANESVILLE, WI 53545
P: (608) 7575450
E: JORGEND@CO.ROCK.WI.US

TOWN OF BRADFORD CHAIRMAN
DAVID MOYER
3622 S CARVERS ROCK RD
AVALON, WI 53505
P: (608) 698-1039
E: TOWNBRADFORDCHAIRPERSON@GMAIL.COM

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
KAYLA SCHMALLE
SOUTHWEST REGION HEADQUARTERS
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711
P: (608) 206-4805
E: KAYLA.SCHMALLE@WISCONSIN.GOV

DESIGNER
AMANDA INMAN, PE
AYRES ASSOCIATES
5201 EAST TERRACE DRIVE, SUITE 200
MADISON, WI 53718
P: (608) 443-1239
E: INMANA@AYRESASSOCIATES.COM

UTILITIES

ALLIANT ENERGY (ELECTRIC)
BRODERICK HUNT
400 KOOPMAN LN
ELKHORN, WI 53121
P: (608) 205-7237
E: BRODERICKHUNT@ALLIANTENERGY.COM

AT&T WISCONSIN
RICK PODOLAK
304 S DEWEY ST
EAU CLAIRE, WI 54701
C: (715) 410-0656
E: RP4514@ATT.COM

BUG TUSSEL WIRELESS
GEREMIAH YOUNG
417 PINE ST
GREEN BAY, WI 54301
P: (920) 328-3442
E: GEREMIAH.YOUNG@BTUSSEL.COM

FRONTIER COMMUNICATIONS
THOMAS REKOWSKI
118 DIVISION ST
PLYMOUTH, WI 53073
C: (608) 844-0980
E: THOMAS.REKOWSKI@VERIZON.COM

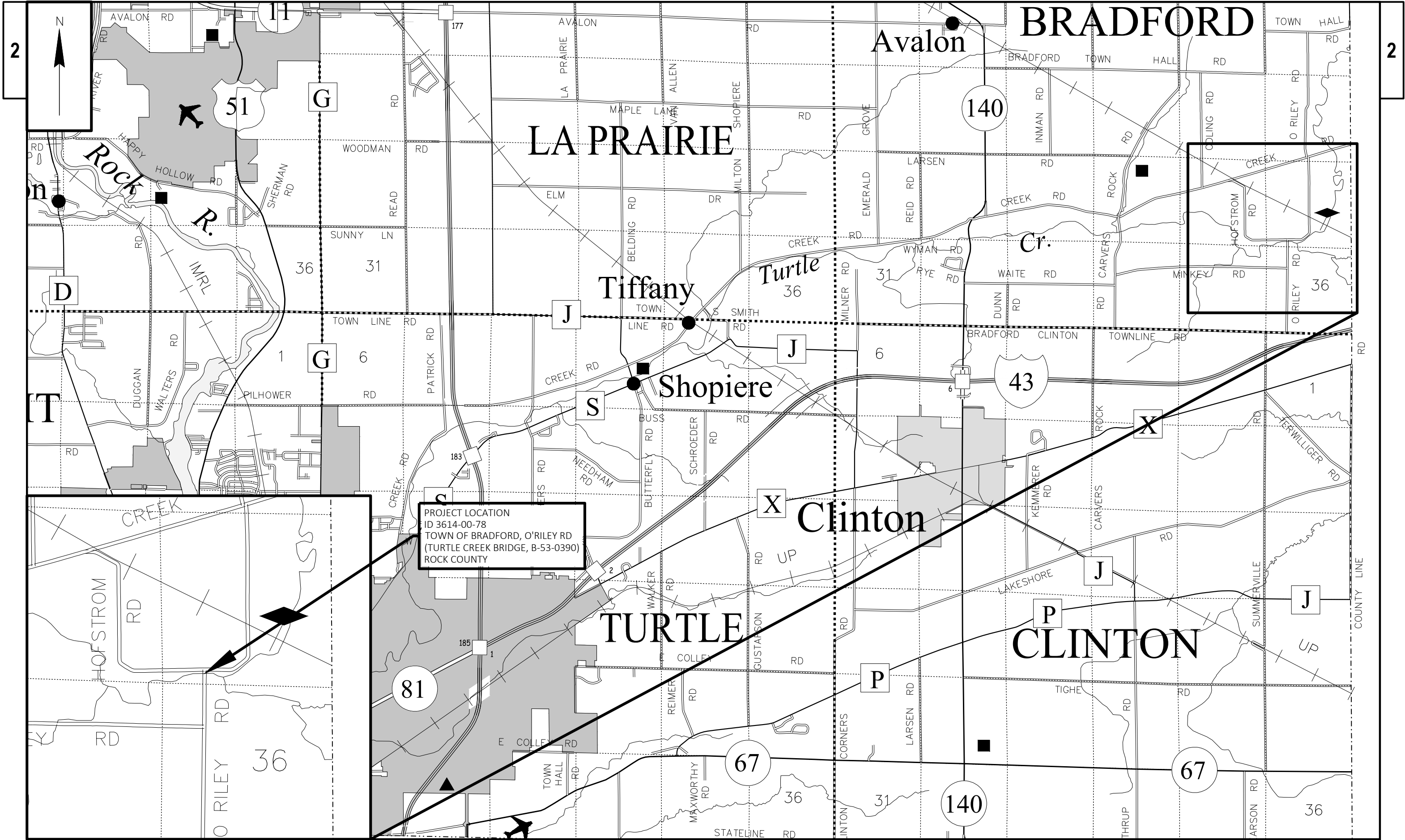
SHARON TELEPHONE COMPANY
KENNY SHEPPARD
105 PLAIN ST
SHARON, WI 53585
P: (262) 215-5096
E: KENNY@SHARONTELEPHONE.COM

** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS

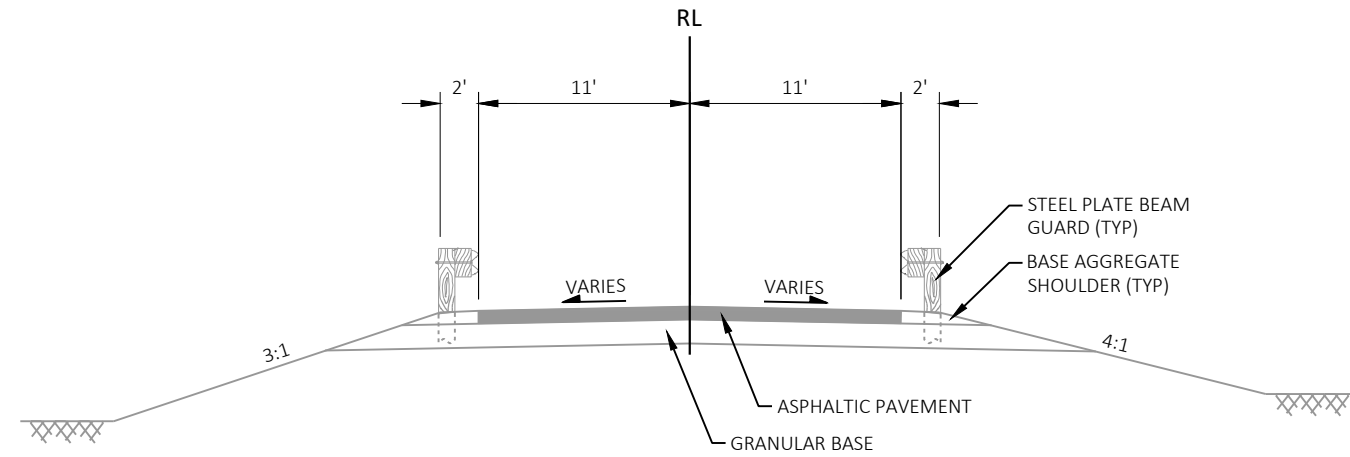


Dial 811 or (800)242-8511

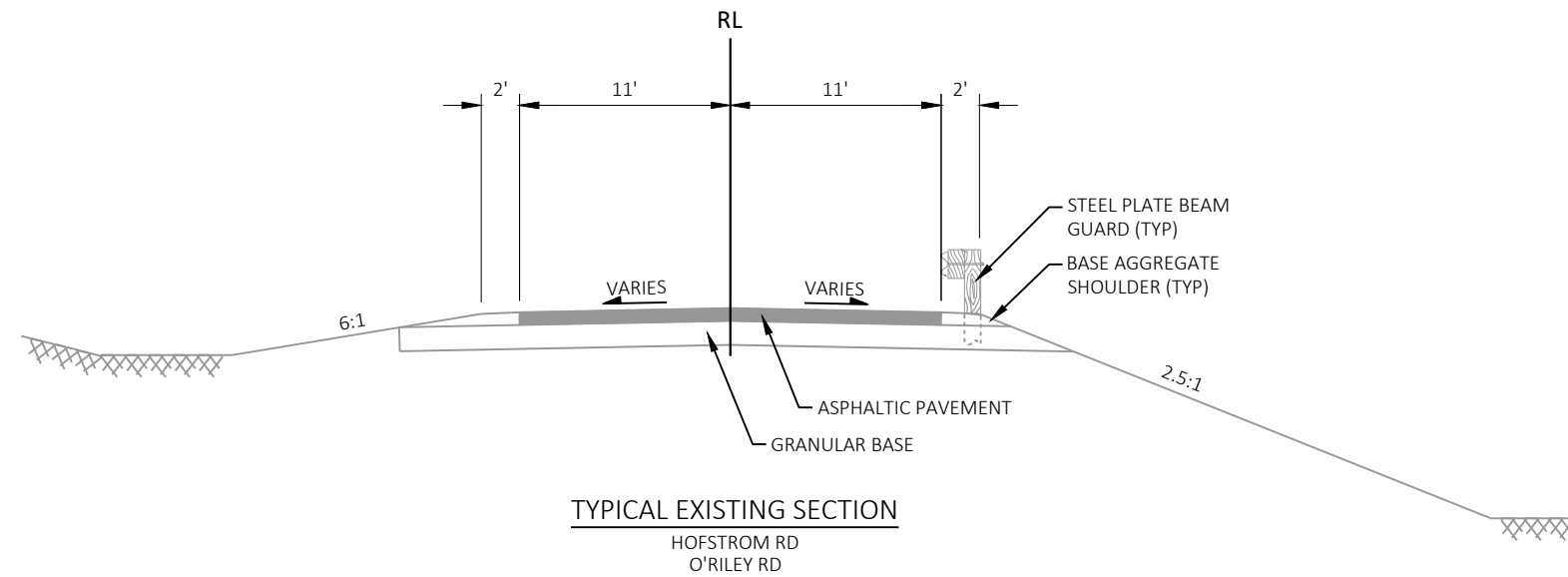
www.DiggersHotline.com



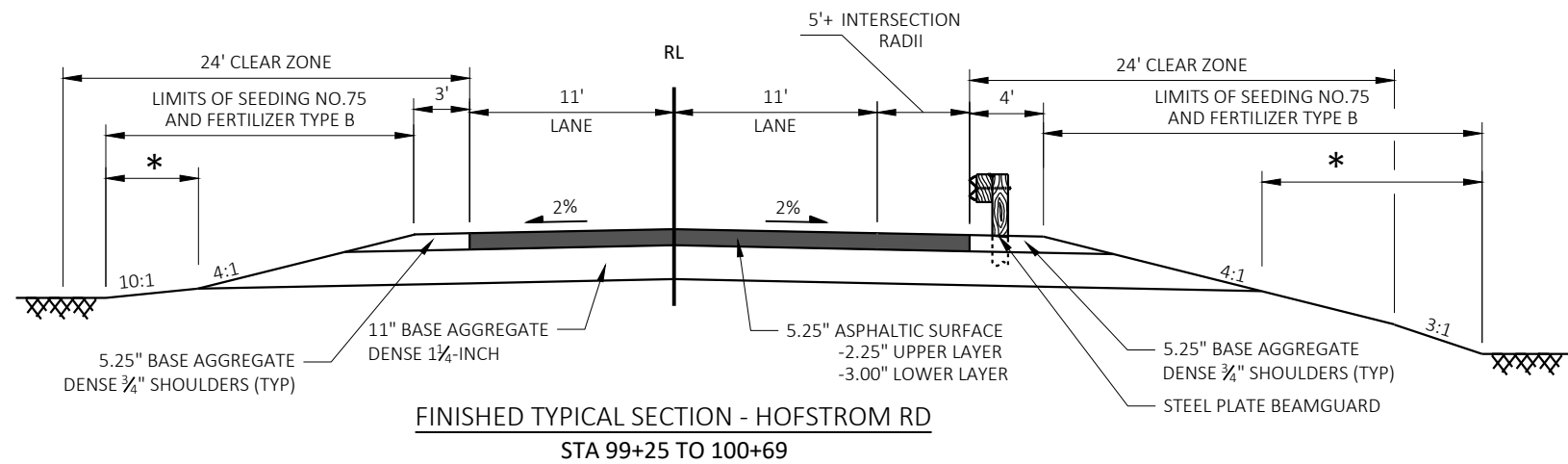
PROJECT LOCATION
ID 3614-00-78
TOWN OF BRADFORD, O'RILEY RD
(TURTLE CREEK BRIDGE, B-53-0390)
ROCK COUNTY



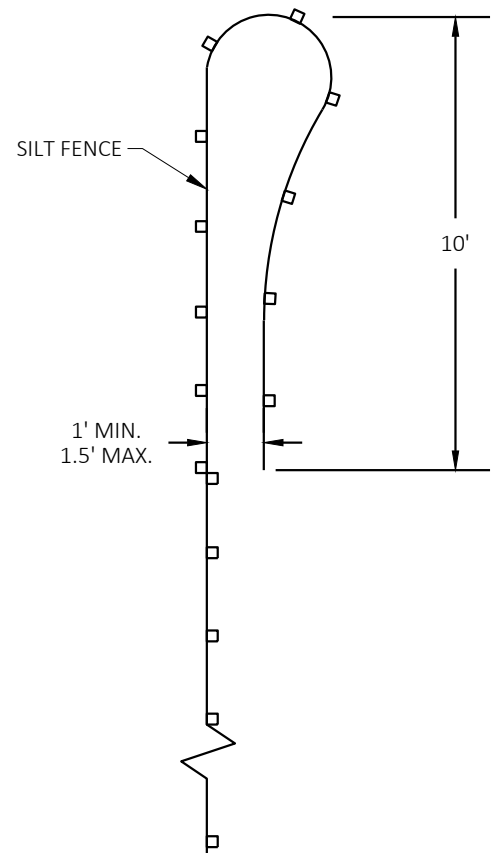
TYPICAL EXISTING SECTION - O'RILEY RD



TYPICAL EXISTING SECTION
HOFSTROM RD
O'RILEY RD



WISDOT/CADDS SHEET 42



SILT FENCE TURNAROUND END DETAIL

SEE EROSION CONTROL PLAN FOR LOCATIONS

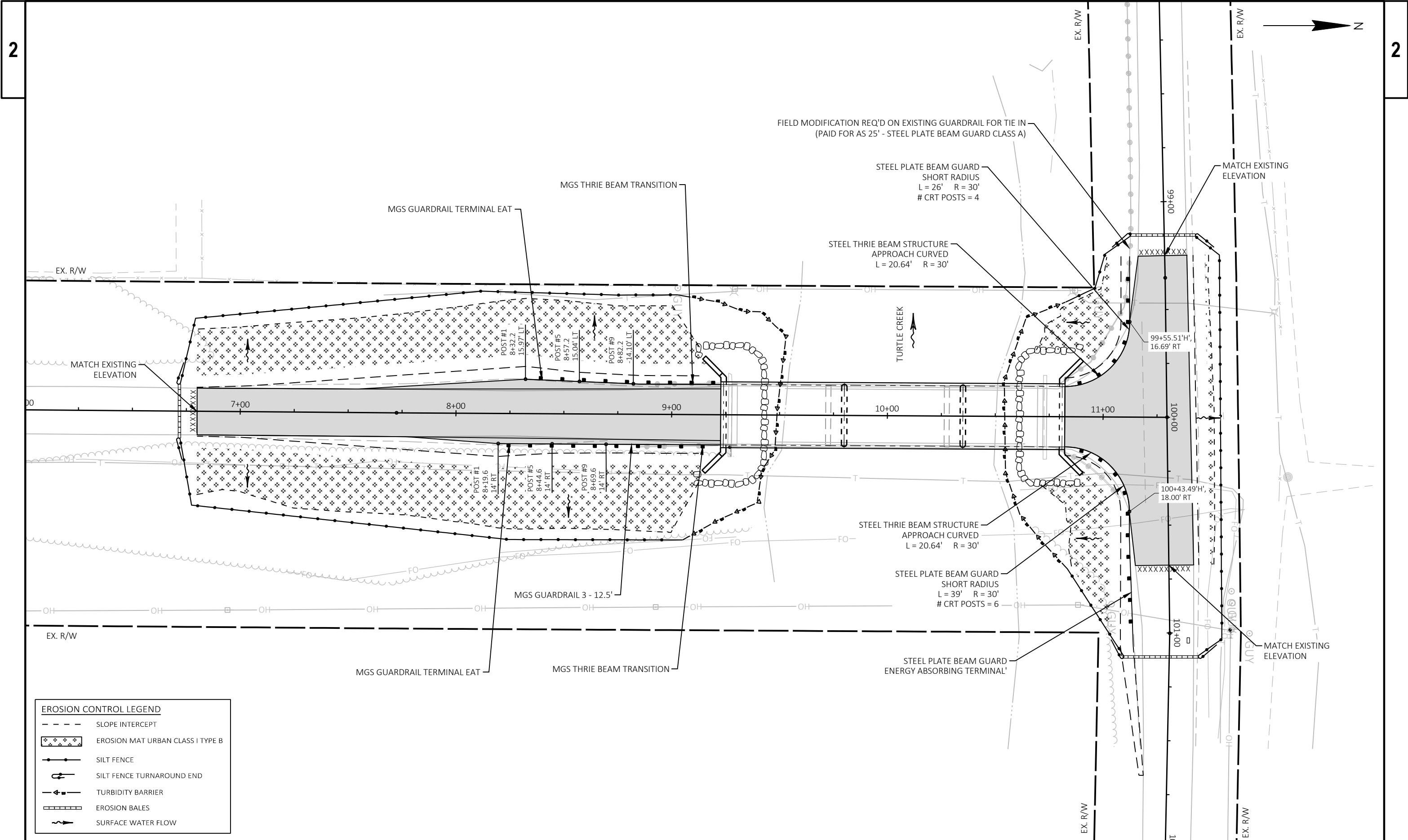
GENERAL NOTES:

1. TURNAROUNDS INTENDED TO REDIRECT AMPHIBIANS AND REPTILES AWAY FROM THE CONSTRUCTION ZONE.
2. SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND AND TRENCHED IN ACCORDING TO SILT FENCE REQUIREMENTS.

A	HYDROLOGIC SOIL GROUP											
	B C									D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE: TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT							.70 - .95					
CONCRETE							.80 - .95					
BRICK							.70 - .80					
DRIVES, WALKS							.75 - .85					
ROOFS							.75 - .95					
GRAVEL ROADS, SHOULDERS							.40 - .60					

TOTAL PROJECT AREA = 1.81 ACRES

TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.70 ACRES



EROSION CONTROL LEGEND

- SLOPE INTERCEPT
- XXXXXX EROSION MAT URBAN CLASS I TYPE B
- SILT FENCE
- SILT FENCE TURNAROUND END
- TURBIDITY BARRIER
- EROSION BALES
- ~— SURFACE WATER FLOW

Estimate Of Quantities

3614-00-78

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	3.000	3.000
0004	201.0205	Grubbing	STA	3.000	3.000
0006	203.0270	Removing Structure Over Waterway Debris Capture (structure) 01. B-53-0390	EACH	1.000	1.000
0008	204.0165	Removing Guardrail	LF	376.000	376.000
0010	205.0100	Excavation Common	CY	402.000	402.000
0012	206.1001	Excavation for Structures Bridges (structure) 01. B-53-0390	EACH	1.000	1.000
0014	206.5001	Cofferdams (structure) 01. B-53-0390	EACH	1.000	1.000
0016	208.0100	Borrow	CY	588.000	588.000
0018	210.1500	Backfill Structure Type A	TON	360.000	360.000
0020	213.0100	Finishing Roadway (project) 01. 3614-00-78	EACH	1.000	1.000
0022	305.0110	Base Aggregate Dense 3/4-Inch	TON	124.000	124.000
0024	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,478.000	1,478.000
0026	455.0605	Tack Coat	GAL	89.000	89.000
0028	465.0105	Asphaltic Surface	TON	373.000	373.000
0030	502.0100	Concrete Masonry Bridges	CY	303.000	303.000
0032	502.3200	Protective Surface Treatment	SY	639.000	639.000
0034	502.9000.S	Underwater Substructure Inspection (structure) 01. B-53-0390	EACH	2.000	2.000
0036	503.0128	Prestressed Girder Type I 28-Inch	LF	788.000	788.000
0038	505.0400	Bar Steel Reinforcement HS Structures	LB	8,960.000	8,960.000
0040	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	33,840.000	33,840.000
0042	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	30.000	30.000
0044	506.4000	Steel Diaphragms (structure) 01. B-53-0390	EACH	12.000	12.000
0046	513.4061	Railing Tubular Type M	LF	324.000	324.000
0048	516.0500	Rubberized Membrane Waterproofing	SY	14.000	14.000
0050	550.0020	Pre-Boring Rock or Consolidated Materials	LF	884.000	884.000
0052	550.1120	Piling Steel HP 12-Inch x 53 Lb	LF	1,150.000	1,150.000
0054	606.0300	Riprap Heavy	CY	260.000	260.000
0056	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	160.000	160.000
0058	614.0305	Steel Plate Beam Guard Class A	LF	25.000	25.000
0060	614.0345	Steel Plate Beam Guard Short Radius	LF	65.000	65.000
0062	614.0370	Steel Plate Beam Guard Energy Absorbing Terminal	EACH	1.000	1.000
0064	614.2300	MGS Guardrail 3	LF	12.500	12.500
0066	614.2500	MGS Thrie Beam Transition	LF	79.200	79.200
0068	614.2610	MGS Guardrail Terminal EAT	EACH	2.000	2.000
0070	618.0100	Maintenance and Repair of Haul Roads (project) 01. 3614-00-78	EACH	1.000	1.000
0072	619.1000	Mobilization	EACH	1.000	1.000
0074	624.0100	Water	MGAL	17.000	17.000
0076	625.0500	Salvaged Topsoil	SY	1,875.000	1,875.000
0078	628.1104	Erosion Bales	EACH	40.000	40.000
0080	628.1504	Silt Fence	LF	1,060.000	1,060.000
0082	628.1520	Silt Fence Maintenance	LF	2,120.000	2,120.000
0084	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0086	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0088	628.2008	Erosion Mat Urban Class I Type B	SY	1,880.000	1,880.000
0090	628.6005	Turbidity Barriers	SY	250.000	250.000
0092	628.7504	Temporary Ditch Checks	LF	60.000	60.000
0094	629.0210	Fertilizer Type B	CWT	1.500	1.500
0096	630.0175	Seeding Mixture No. 75	LB	16.000	16.000
0098	630.0200	Seeding Temporary	LB	66.000	66.000

Estimate Of Quantities

3614-00-78

Line	Item	Item Description	Unit	Total	Qty
0100	630.0500	Seed Water	MGAL	55.500	55.500
0102	634.0612	Posts Wood 4x6-Inch x 12-FT	EACH	4.000	4.000
0104	634.0614	Posts Wood 4x6-Inch x 14-FT	EACH	1.000	1.000
0106	637.2210	Signs Type II Reflective H	SF	5.180	5.180
0108	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0110	638.2602	Removing Signs Type II	EACH	6.000	6.000
0112	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0114	642.5001	Field Office Type B	EACH	1.000	1.000
0116	643.0420	Traffic Control Barricades Type III	DAY	4,590.000	4,590.000
0118	643.0705	Traffic Control Warning Lights Type A	DAY	6,120.000	6,120.000
0120	643.0900	Traffic Control Signs	DAY	4,760.000	4,760.000
0122	643.5000	Traffic Control	EACH	1.000	1.000
0124	645.0111	Geotextile Type DF Schedule A	SY	100.000	100.000
0126	645.0120	Geotextile Type HR	SY	470.000	470.000
0128	650.4500	Construction Staking Subgrade	LF	405.000	405.000
0130	650.5000	Construction Staking Base	LF	405.000	405.000
0132	650.6501	Construction Staking Structure Layout (structure) 01. B-53-0390	EACH	1.000	1.000
0134	650.9911	Construction Staking Supplemental Control (project) 01. 3614-00-78	EACH	1.000	1.000
0136	650.9920	Construction Staking Slope Stakes	LF	405.000	405.000
0138	690.0150	Sawing Asphalt	LF	66.000	66.000
0140	715.0502	Incentive Strength Concrete Structures	DOL	1,830.000	1,830.000
0142	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 10+02.50	EACH	1.000	1.000
0144	SPV.0060	Special 01. Creek Bed Stone	EACH	1.000	1.000
0146	SPV.0090	Special 01. Steel Thrie Beam Structure Approach Curved	LF	42.000	42.000

CLEARING & GRUBBING

CATEGORY	STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
0010	6+80	-	9+22	O'RILEY RD	2	2
	99+25	-	100+50.88	HOFSTROM RD	1	1
TOTAL 0010					3	3

BASE AGGREGATE ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL
0010	6+80	-	9+22	O'RILEY RD	105	800	10
	99+25	-	100+50.88	HOFSTROM RD	19	678	7
TOTAL 0010					124	1,478	17

REMOVING GUARDRAIL

CATEGORY	STATION	TO	STATION	LOCATION	204.0165 REMOVING GUARDRAIL LF
0010	8+83	-	9+21	O'RILEY RD RT	39
	8+84	-	9+22	O'RILEY RD LT	38
	10+78	-	11+08	O'RILEY RD RT	39
	99+34	-	99+84	HOFSTROM RD RT	260
TOTAL 0010					376

ASPHALTIC SURFACE ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
0010	6+80	-	9+22	O'RILEY RD	40	169
	99+25	-	100+50.88	HOFSTROM RD	49	204
TOTAL 0010					89	373

O'RILEY RD EARTHWORK SUMMARY

From/To Station	Location	Common Excavation (1) (Item 205.0100)		Unexpanded Fill	Expanded Fill (2)	Mass Ordinate +/- (3)	Waste	Borrow (Item 208.0100)
		Cut	Unusable Cut		Factor 1.30			
6+80 - 9+22	O'RILEY RD	186	112	589	766	-580		580
	TOTAL	298						
99+25 - 100+50	HOFSTROM	34	70	32	42	-8		8
	TOTAL	104						

PROJECT TOTAL 402 588

- 1) Common Excavation is the Cut. Unusable excavation is existing pavement. Item number 205.0100
- 2) Expanded Fill. Factor = 1.30; Expanded Fill = Unexpanded Fill * Fill Factor
- 3) The Mass Ordinate + (waste) or - (borrow)
- 4) All quanties shown in CY.

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

GUARDRAIL ITEMS												
CATEGORY	STATION	TO	STATION	LOCATION	614.0305	614.0345	614.0370	614.2300	614.2500	614.2610	SPV.0090.01	
					STEEL PLATE BEAM GUARD CLASS A LF	STEEL PLATE BEAM GUARD SHORT RADIUS LF	STEEL PLATE ENERGY ABSORBING TERMINAL EACH	MGS GUARDRAIL 3 LF	MGS THRIE BEAM TRANSITION LF	MGS GUARDRAIL TERMINAL EAT EACH	SPECIAL (01. STEEL THRIE BEAM STRUCTURE APPROACH CURVED) LF	
0010	99+34	-	99+84	HOFSTROM RD RT	--	39	1	--	--	--	21	
	10+78	-	11+08	O'RILEY RD RT	25	26	--	--	--	--	21	
	8+19	-	9+21	O'RILEY RD RT	--	--	--	12.5	39.6	1	--	
	8+32	-	9+21	O'RILEY RD LT	--	--	--	--	39.6	1	--	
TOTAL 0010					25	65	1	12.5	79.2	2	42	

EROSION CONTROL ITEMS											
CATEGORY	STATION	TO	STATION	LOCATION	628.1104	628.1504	628.1520	628.2008	628.6005	628.7504	
					EROSION BALES EACH	SILT FENCE LF	SILT FENCE MAINTENANCE LF	EROSION MAT URBAN CLASS I TYPE B SY	TURBIDITY BARRIERS SY	TEMPORARY DITCH CHECKS LF	
0010	6+80	-	9+00	O'RILEY RD	10	550	1,100	1,290	137	--	
	10+68	-	11+02	O'RILEY RD	--	100	200	170	113	--	
	99+25	-	100+68	HOFSTROM RD	25	200	400	50	--	--	
				UNDISTRIBUTED	5	210	420	370	--	60	
TOTAL 0010					40	1,060	2,120	1,880	250	60	

FINISHING ITEMS									
CATEGORY	STATION	TO	STATION	LOCATION	625.0500	629.0210	630.0175	630.0200	630.0500
					SALVAGED TOPSOIL SY	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 75 LB	SEEDING TEMPORARY LB	SEED WATER MGAL
0010	6+80	-	9+00	O'RILEY RD	1,290	1.0	10	43	35.4
	10+68	-	11+02	O'RILEY RD	170	0.1	2	6	5.3
	99+25	-	100+68	HOFSTROM RD	40	0.1	1	4	3.7
				UNDISTRIBUTED	375	0.3	3	13	11.1
TOTAL 0010					1,875	1.5	16	66	55.5

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

PERMANENT SIGNING ITEMS

CATEGORY	STATION	LOCATION	SIGN CODE	WIDTH (IN)	HEIGHT (IN)	MESSAGE	634.0612	634.0614	637.2210	637.2230	638.2602	638.3000
							POSTS WOOD 4X6-INCH X 12- FT EACH	POSTS WOOD 4X6-INCH X 14- FT EACH	SIGNS TYPE II REFLECTIVE H SF	SIGNS TYPE II REFLECTIVE F SF	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH
0010	9+25	LT	W5-52L	--	--	BRIDGE HASH MARKS LT	--	--	--	--	1	1
	9+25	RT	W5-52R	--	--	BRIDGE HASH MARKS RT	--	--	--	--	1	1
	9+25	LT	W5-52L	12	36	BRIDGE HASH MARKS LT	1	--	--	3	--	--
	9+25	RT	W5-52R	12	36	BRIDGE HASH MARKS RT	1	--	--	3	--	--
	10+78	LT	W5-52L	--	--	BRIDGE HASH MARKS LT	--	--	--	--	1	1
	10+78	RT	W5-52R	--	--	BRIDGE HASH MARKS RT	--	--	--	--	1	1
	10+78	LT	W5-52L	12	36	BRIDGE HASH MARKS LT	1	--	--	3	--	--
	10+78	RT	W5-52R	12	36	BRIDGE HASH MARKS RT	1	--	--	3	--	--
	10+78	RT	R1-1	30	30	STOP	--	--	--	--	1	1
	10+78	RT	R1-1	30	30	STOP	--	1	5.18	--	1	1
TOTAL 0010							4	1	5.18	12.00	6	6

TRAFFIC CONTROL ITEMS

				643.0420	643.0705		643.0900	643.5000		
				TRAFFIC CONTROL BARRICADES TYPE III	TRAFFIC CONTROL WARNING LIGHTS		TRAFFIC CONTROL SIGNS	TRAFFIC CONTROL		
CATEGORY	LOCATION	DURATION DAYS	NO.	DAY	NO.	DAY	NO.	DAY	EACH	REMARKS
0010	O'RILEY RD	170	18	3060	24	4080	17	2890	1	SDD 15C2
	HOFSTROM RD		9	1530	12	2040	8	1360	--	
	E CREEK RD		--	--	--	--	2	340	--	
	MINKEY RD		--	--	--	--	1	170	--	
TOTAL 0010										
				4,590		6,120		4,760	1	

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

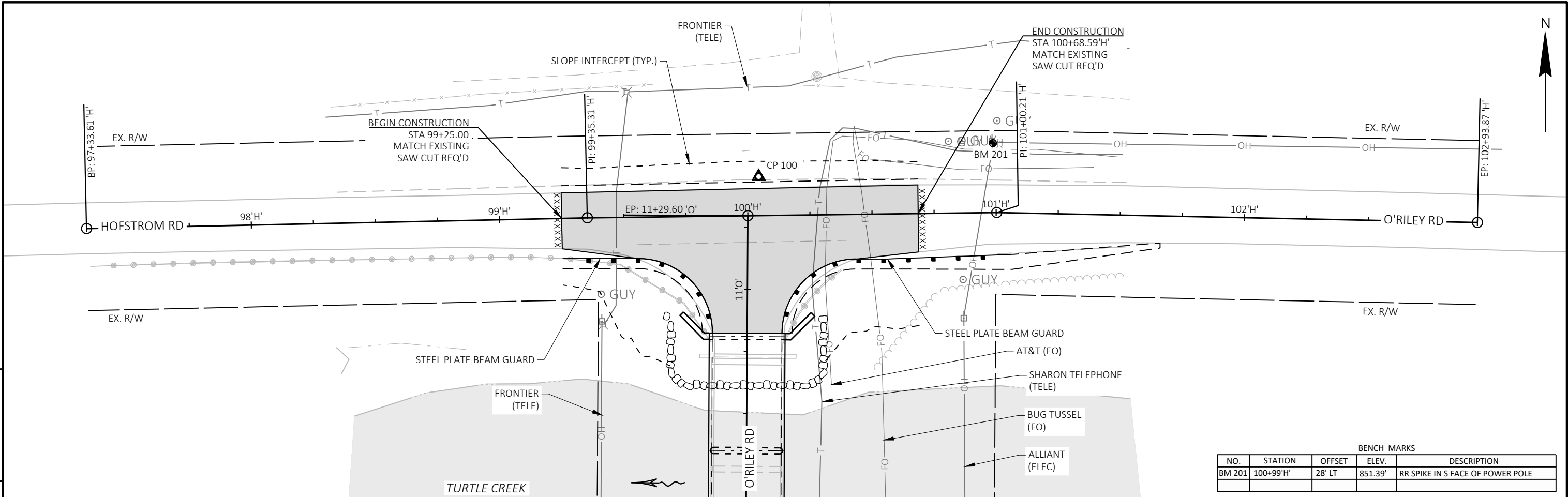
CONSTRUCTION STAKING ITEMS

					650.4500	650.5000	650.6501.01	650.9911.01	650.9920
							CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (01. B-53-0390) EACH	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 3614-00-78) EACH	
CATEGORY	STATION	TO	STATION	LOCATION	CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING BASE LF			CONSTRUCTION STAKING SLOPE STAKES LF
0010	6+80	-	9+22	O'RILEY RD	242	242	--	1	242
	10+82.25	-	11+18.83	O'RILEY RD	37	37	--	--	37
	99+25	-	100+50.88	HOFSTROM RD	126	126	--	--	126
	TOTAL 0010				405	405	0	1	405
0020	9+22	-	10+82.25	O'RILEY RD	--	--	1	--	--
	TOTAL 0020				0	0	1	0	0
PROJECT TOTAL					405	405	1	1	405

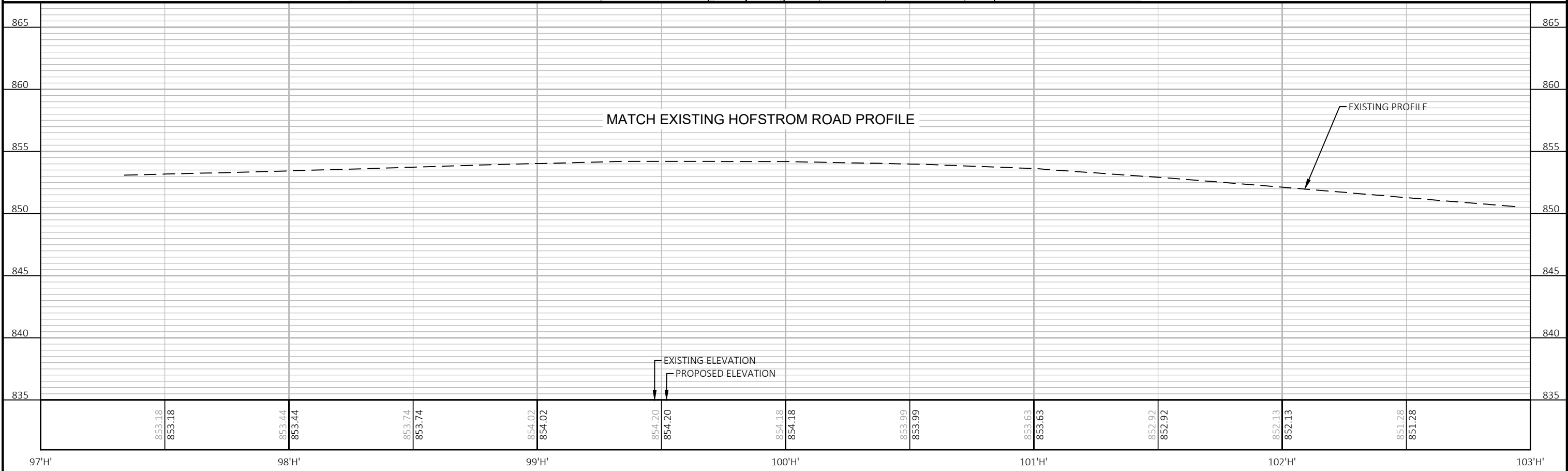
SAWING ASPHALT

				690.0150
				SAWING
				ASPHALT
CATEGORY	STATION	LOCATION		LF
0010	6+80	O'RILEY RD		22
	99+25	HOFSTROM RD		22
	100+68	HOFSTROM RD		22
TOTAL 0010				66

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

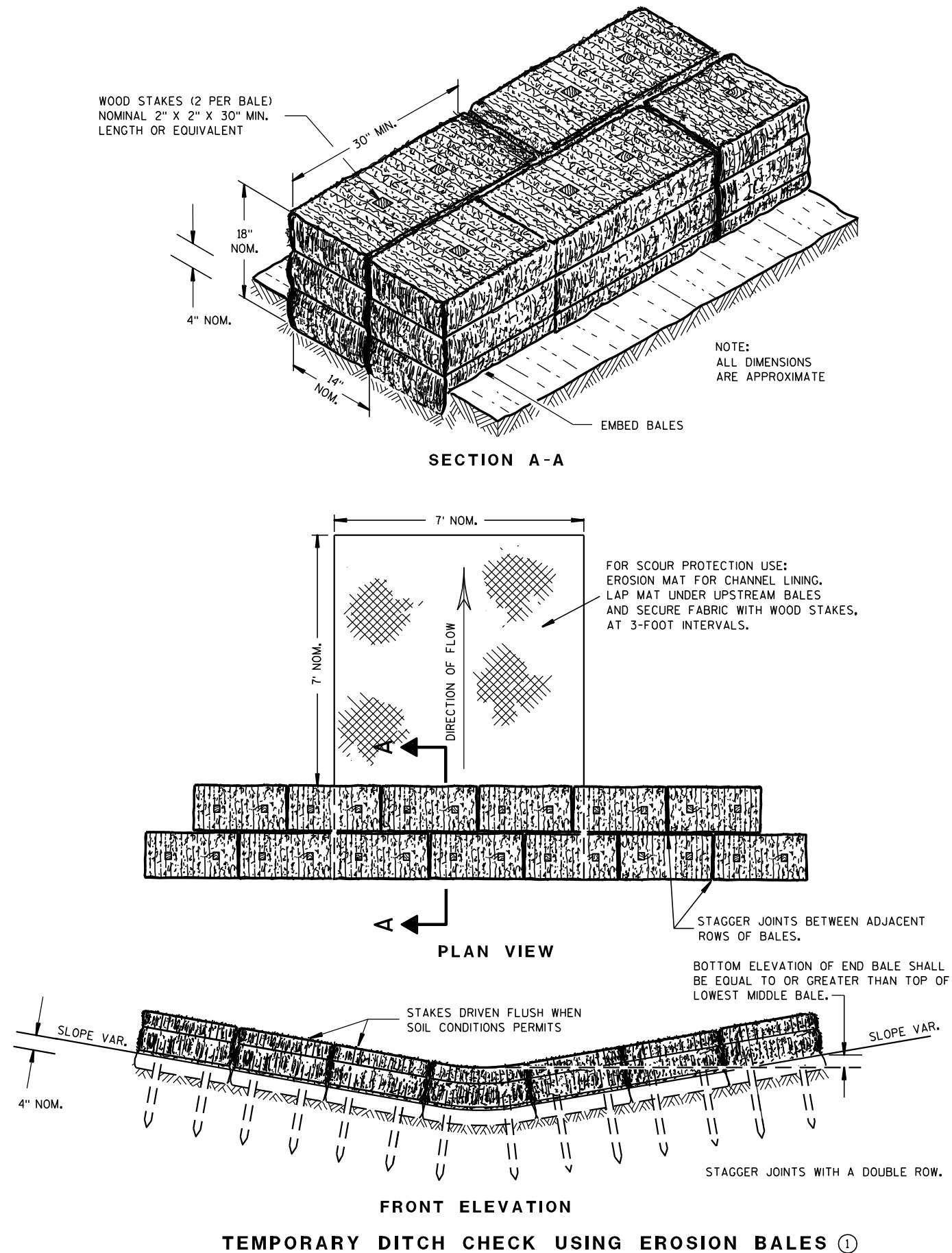


BENCH MARKS				
NO.	STATION	OFFSET	ELEV.	DESCRIPTION
BM 201	100+99'H'	28' LT	851.39'	RR SPIKE IN S FACE OF POWER POLE



Standard Detail Drawing List

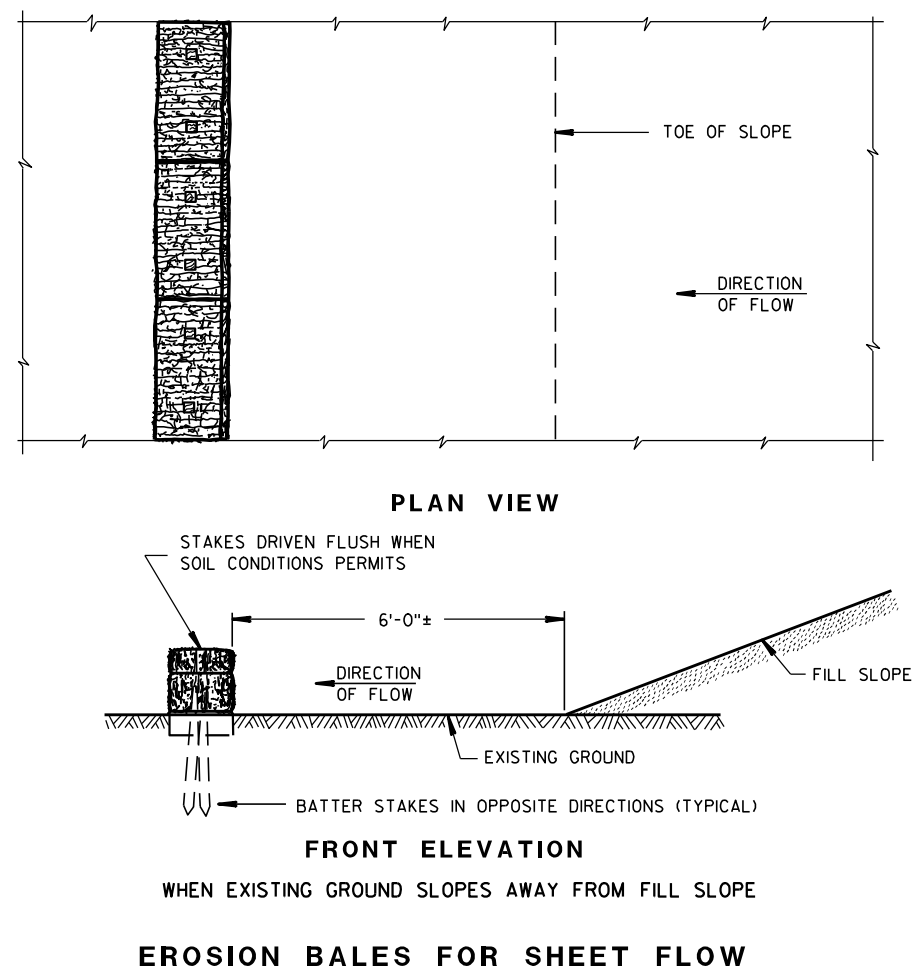
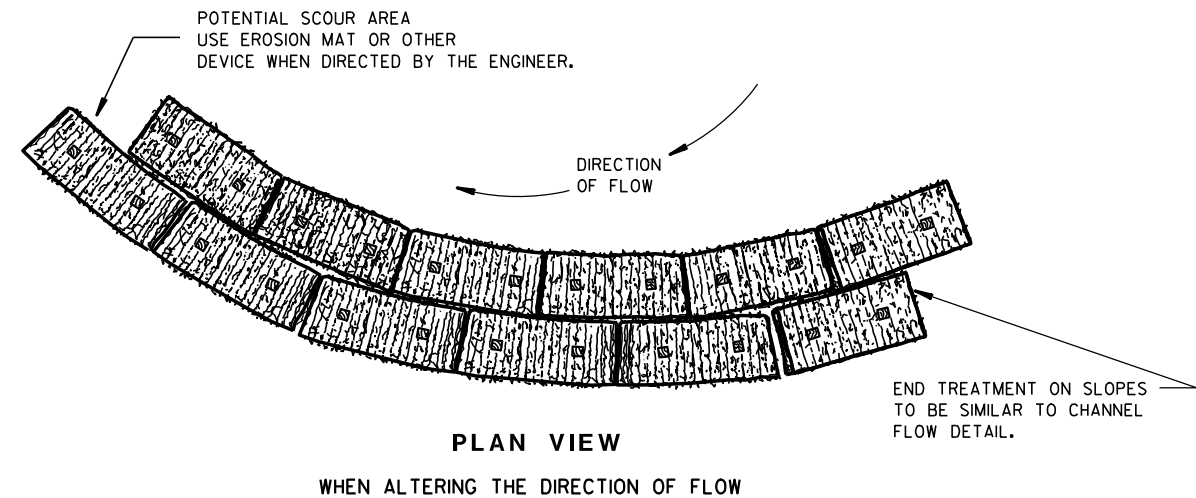
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
13C19-03	HMA LONGITUDINAL JOINTS
14B20-12F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-10A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-10B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-12	SIGNING AND MARKING FOR TWO LANE BRIDGES
15C11-11B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

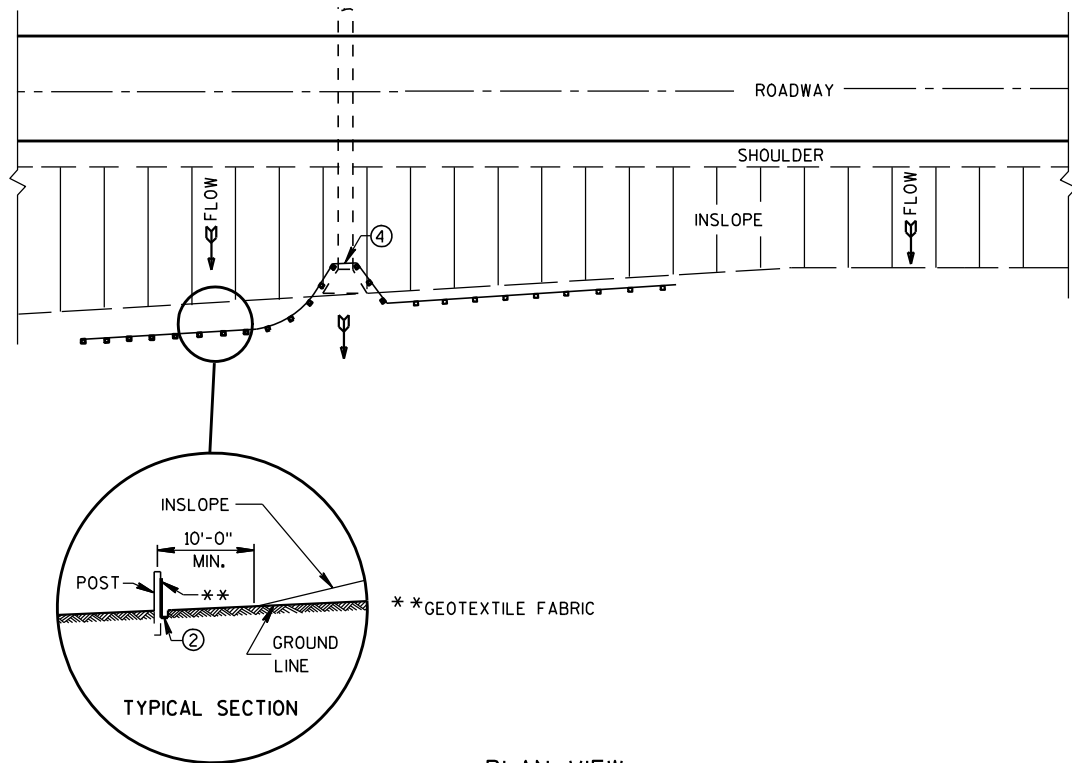
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

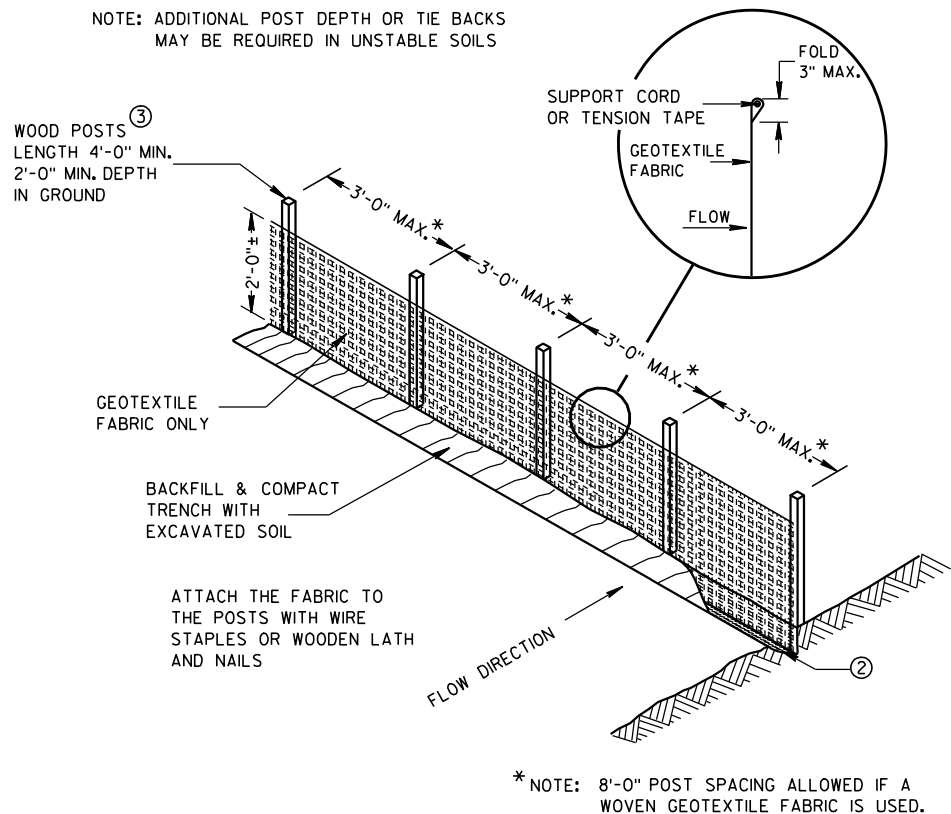
APPROVED

6/04/02
DATE/S/ Beth Conn
CHIEF ROADWAY DEVELOPER 17 ENGINEER

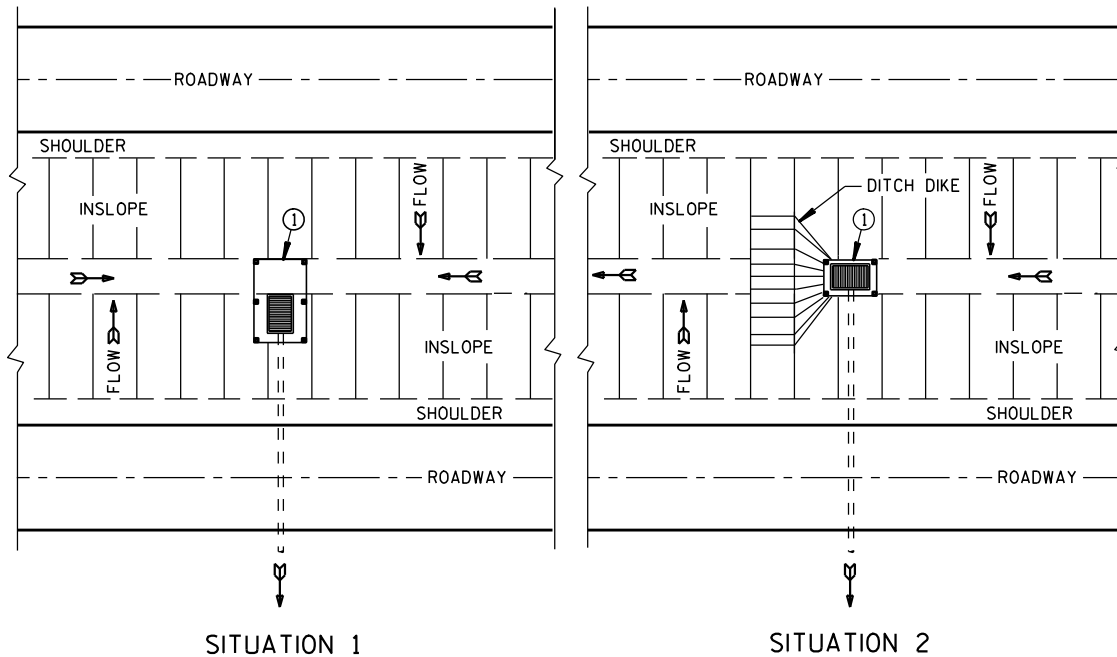
FHWA



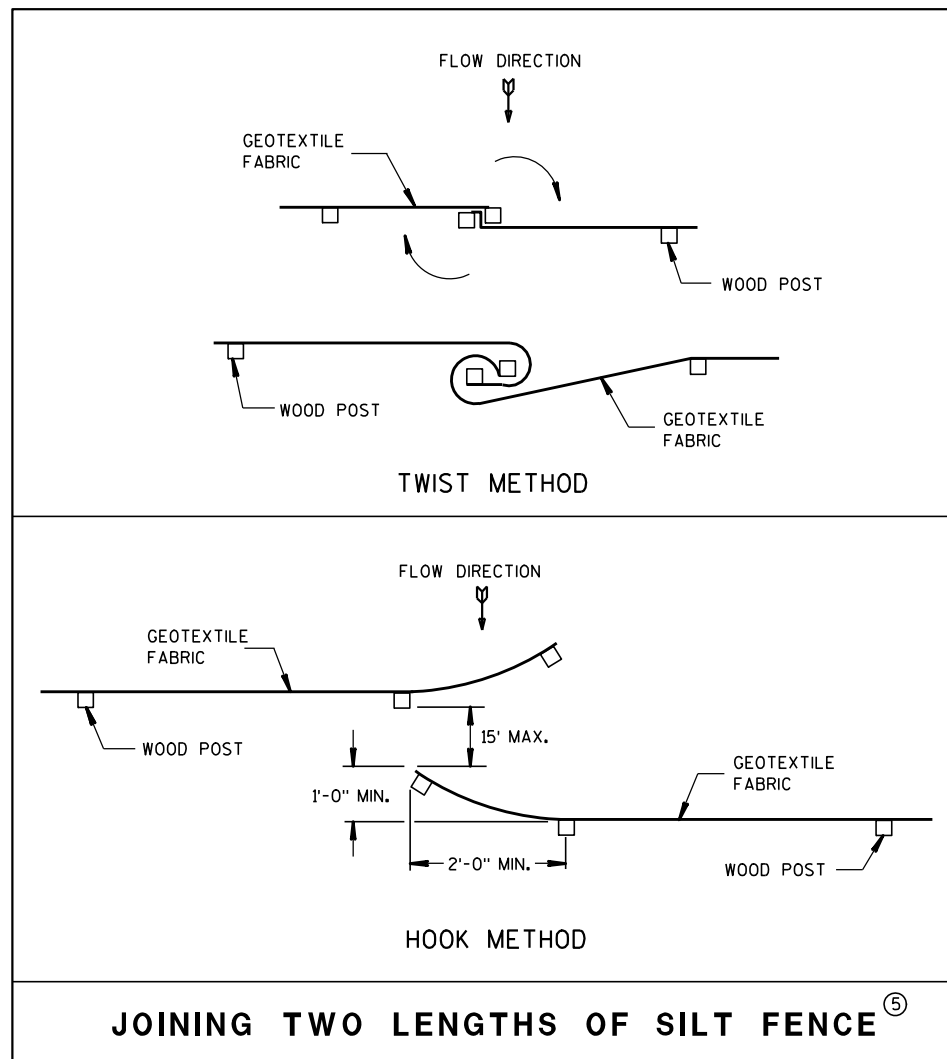
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

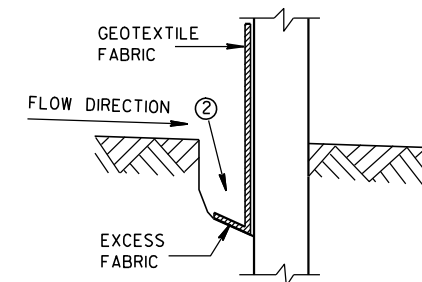


JOINING TWO LENGTHS OF SILT FENCE (5)

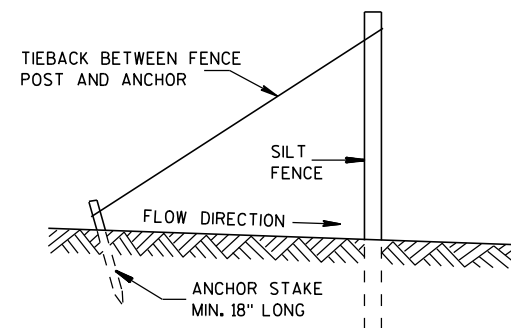
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

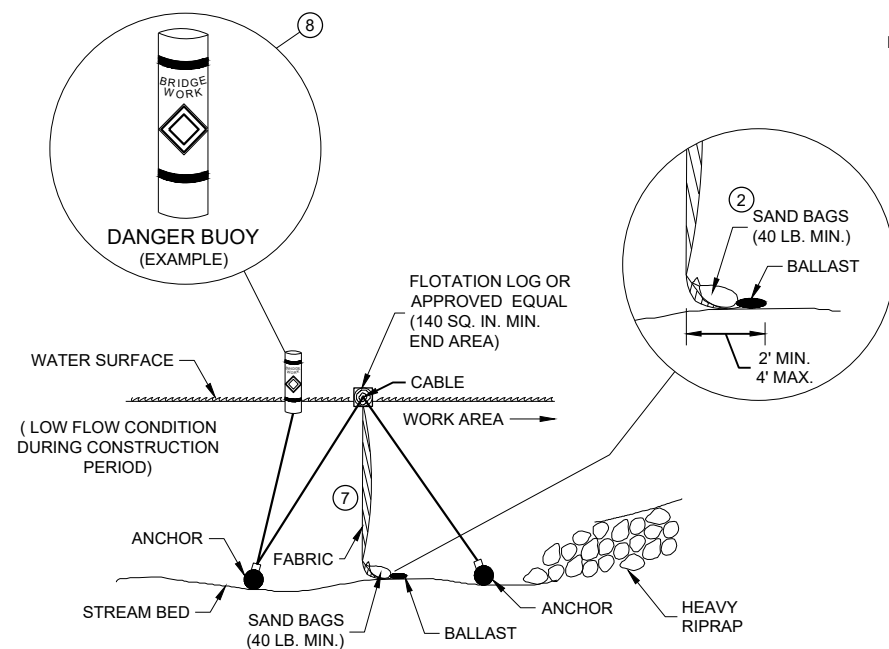


TRENCH DETAIL



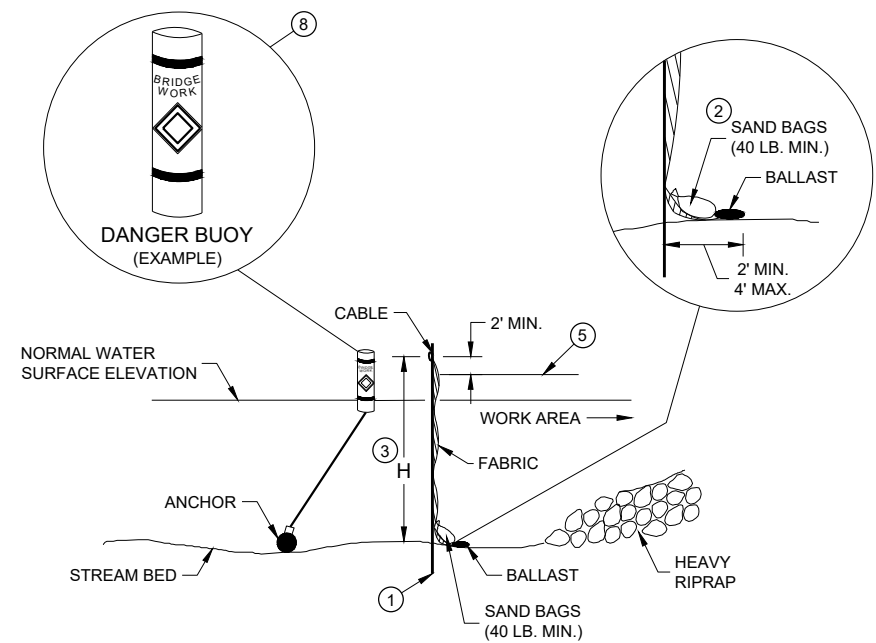
SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Conn CHIEF ROADWAY DEVELOPER 18 ENGINEER
FHWA	



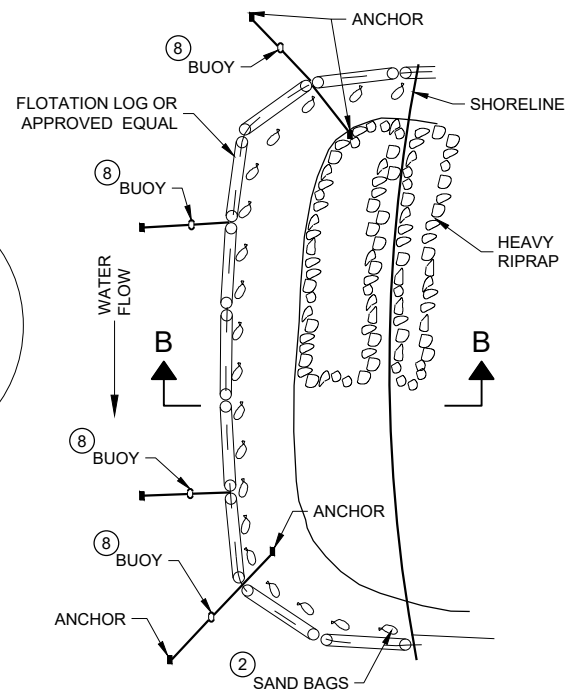
SECTION B - B

TURBIDITY BARRIER - FLOAT ALTERNATIVE CAUTION - SEE NOTE 6

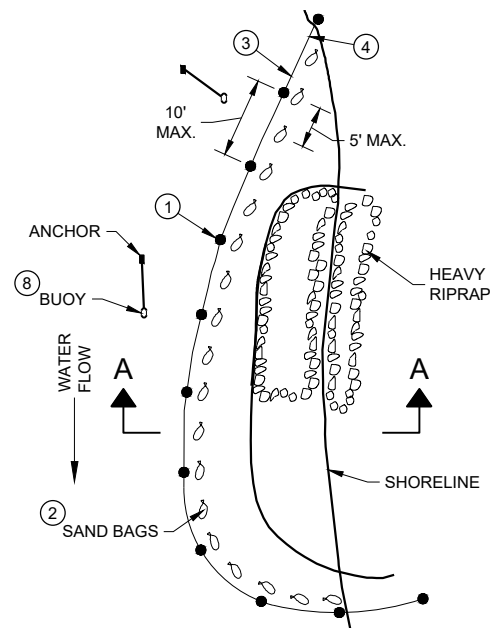


SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION



PLAN VIEW



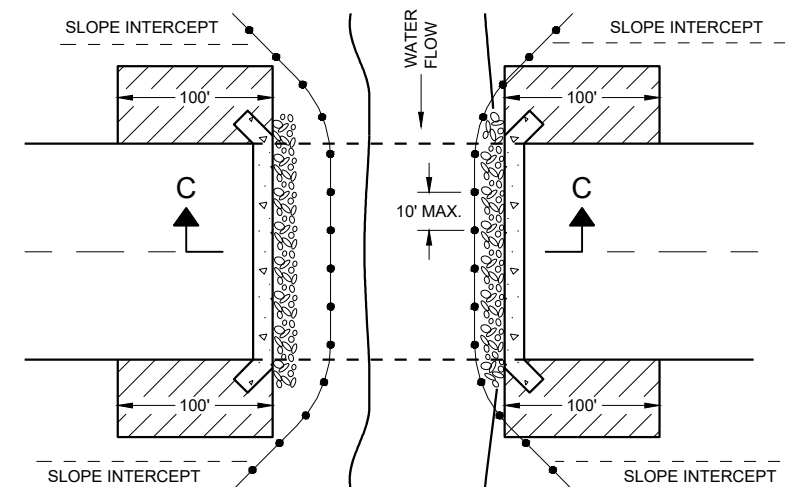
PLAN VIEW

GENERAL NOTES

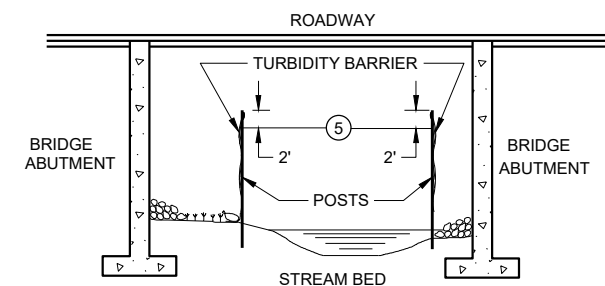
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- 1 DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- 2 SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- 3 WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- 4 IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- 5 ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- 6 FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- 7 ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- 8 USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



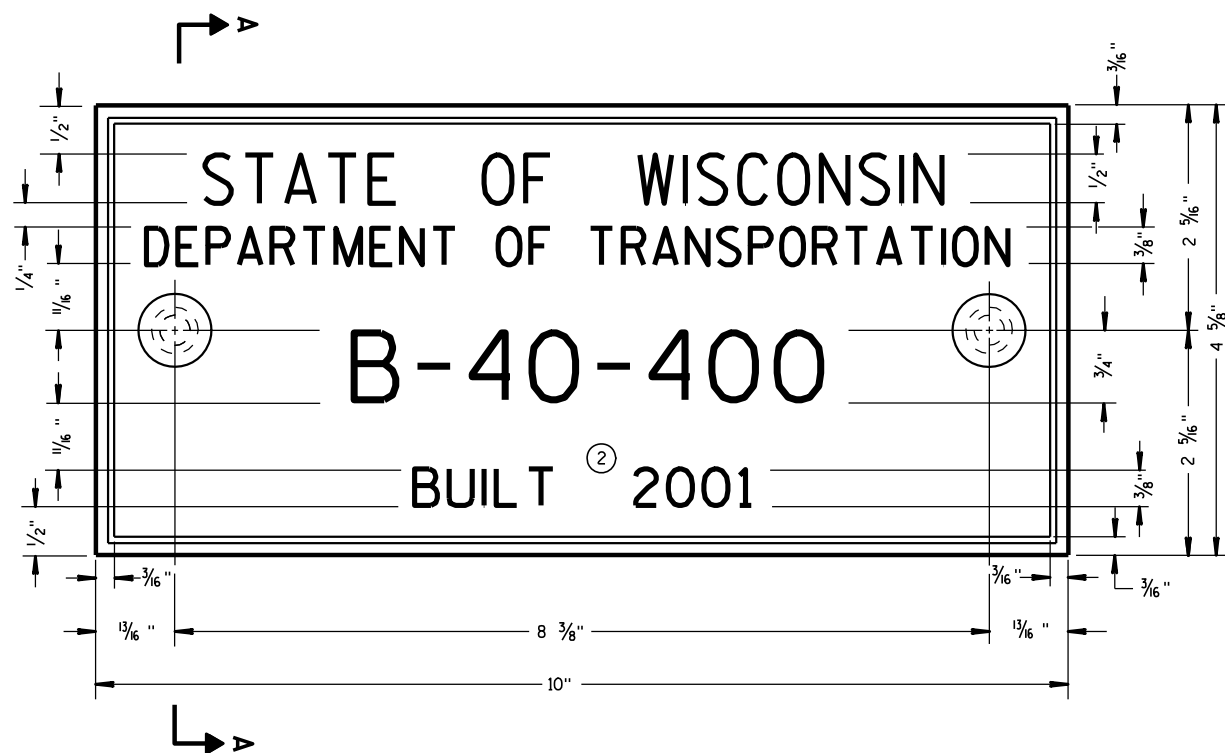
SECTION C - C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

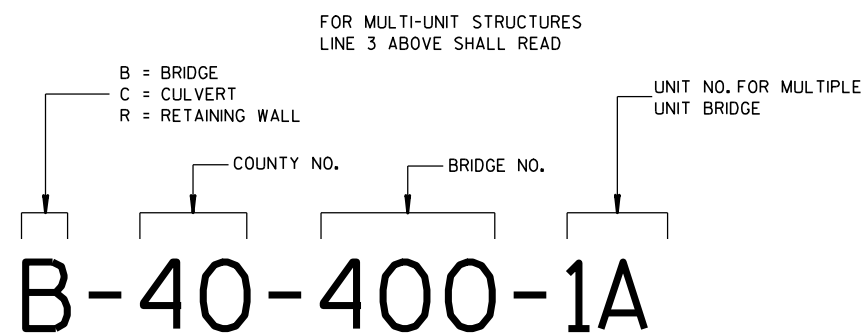
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/4/02 DATE /S/ Beth Cannestra
DATE CHIEF ROADWAY DEVELOPER
ENGINEER 19
FHWA



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)



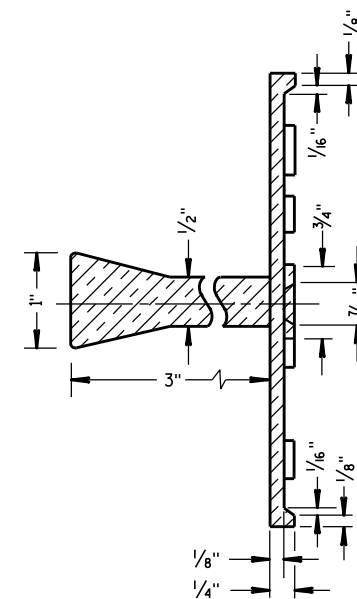
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

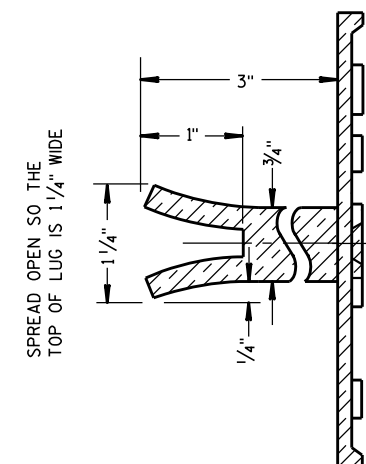
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.

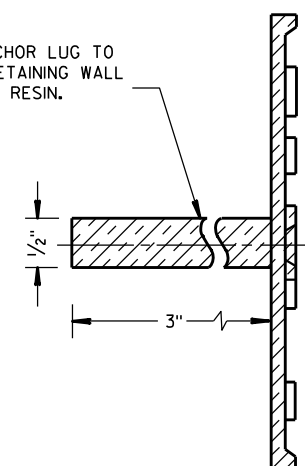


SECTION A-A



ALTERNATE LUG

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

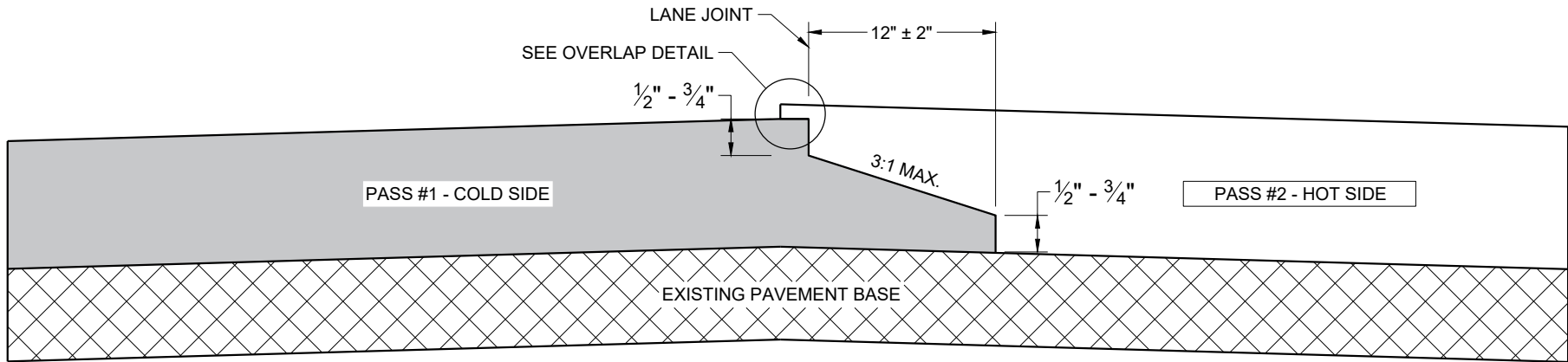
APPROVED

3/26/10
DATE

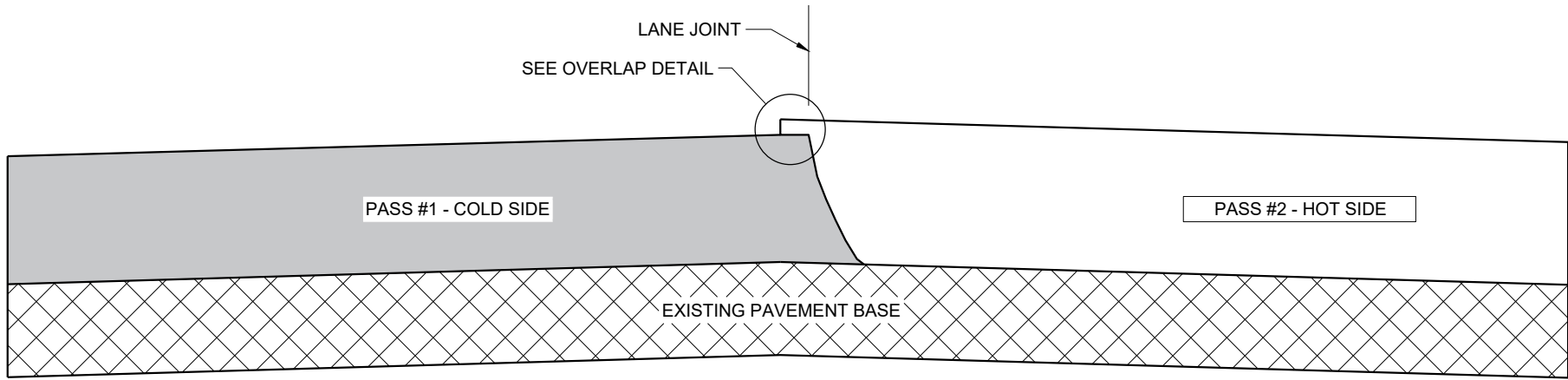
FHWA

/S/ Scot Beck
CHIEF STRUCTURAL DEVELOPER

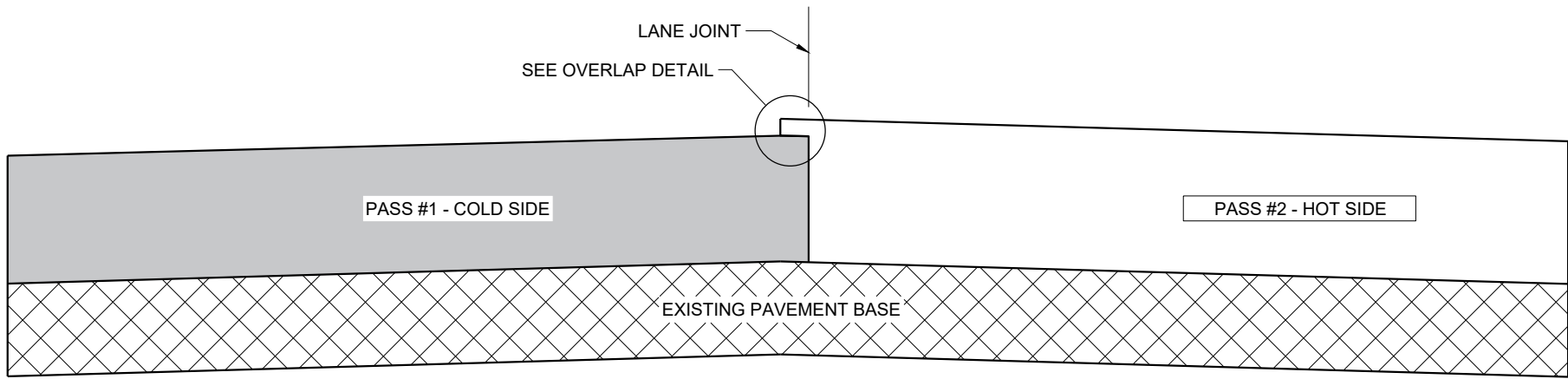
JEER



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

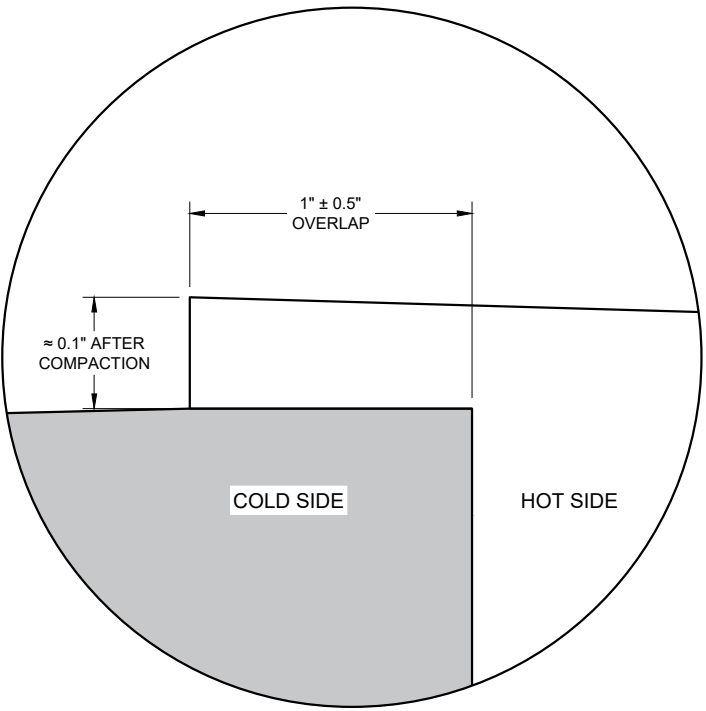
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY 1" ± 0.5" AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



OVERLAP DETAIL (TYPICAL)

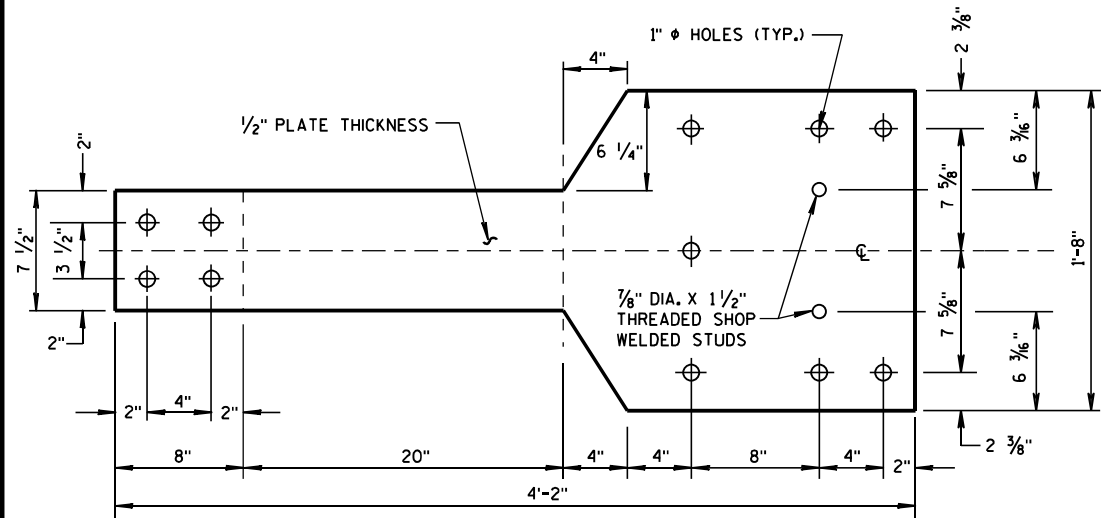
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

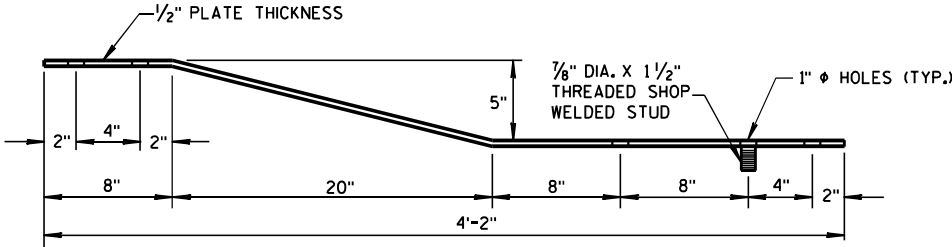
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 21
FHWA

GENERAL NOTES

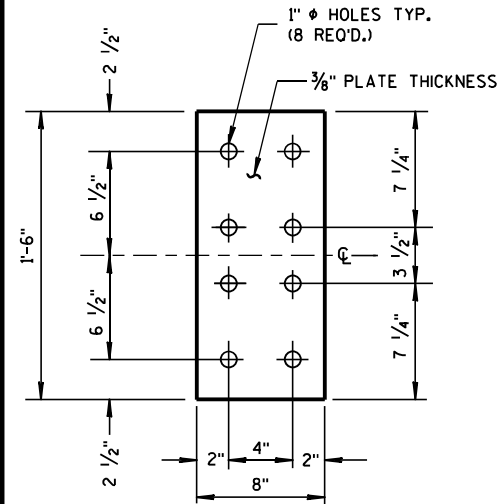
① VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.



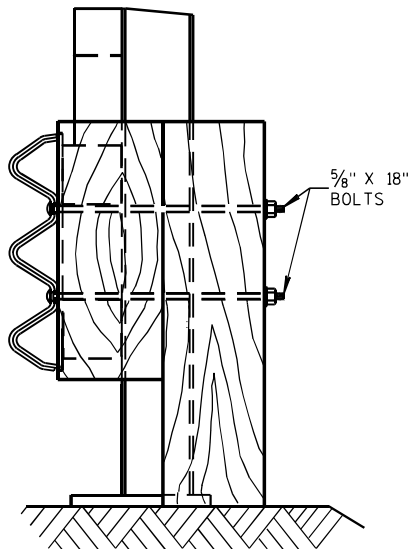
FRONT VIEW



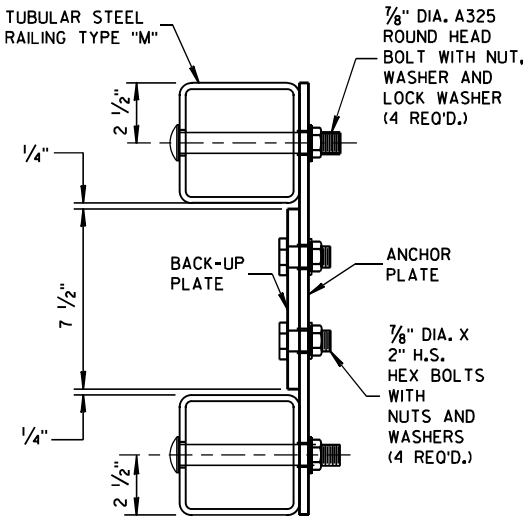
PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"



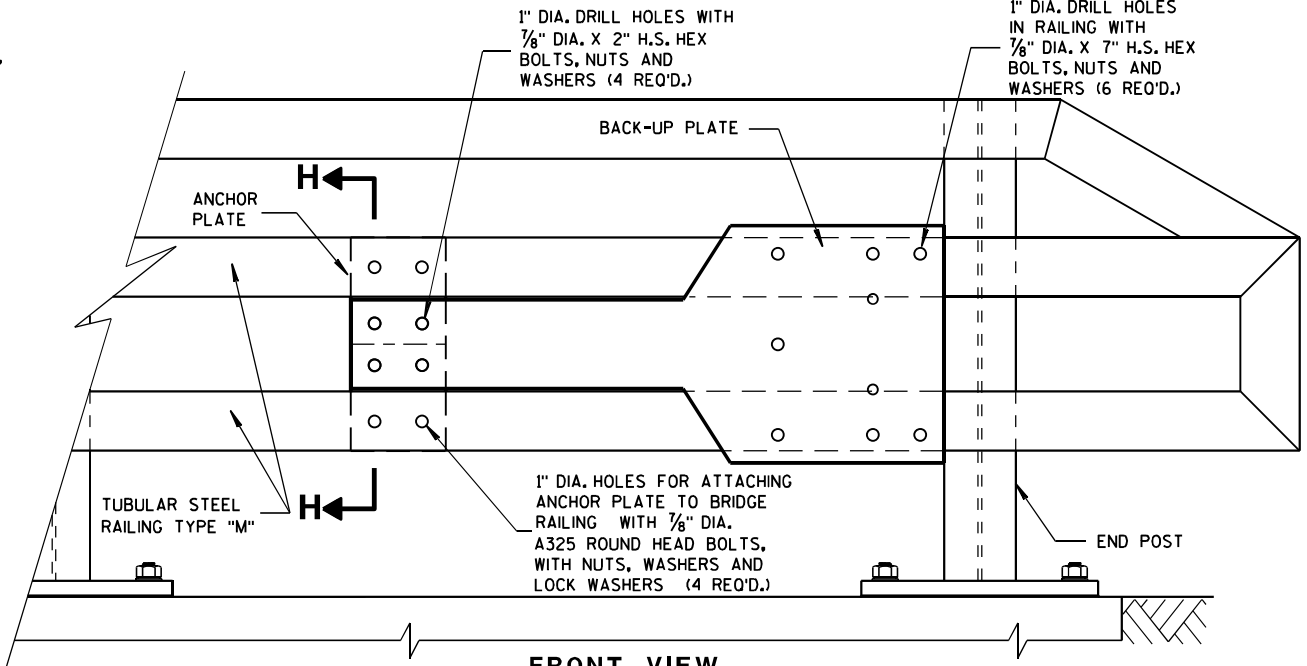
FRONT VIEW
ANCHOR
PLATE DETAIL,
TYPE "M"



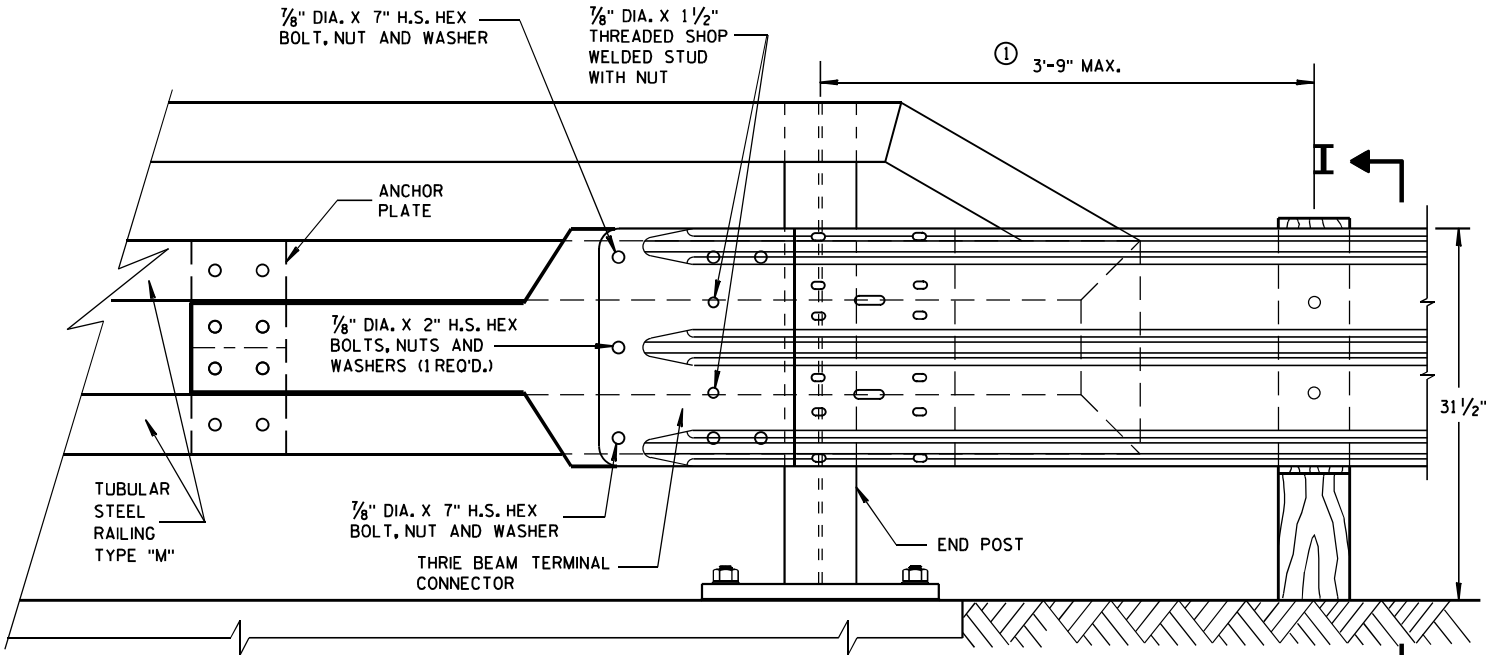
SECTION I-I



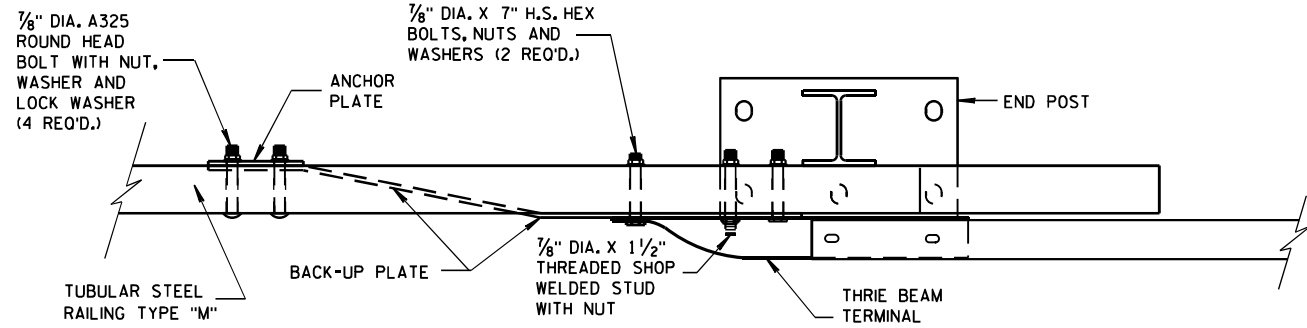
SECTION H-H



ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW



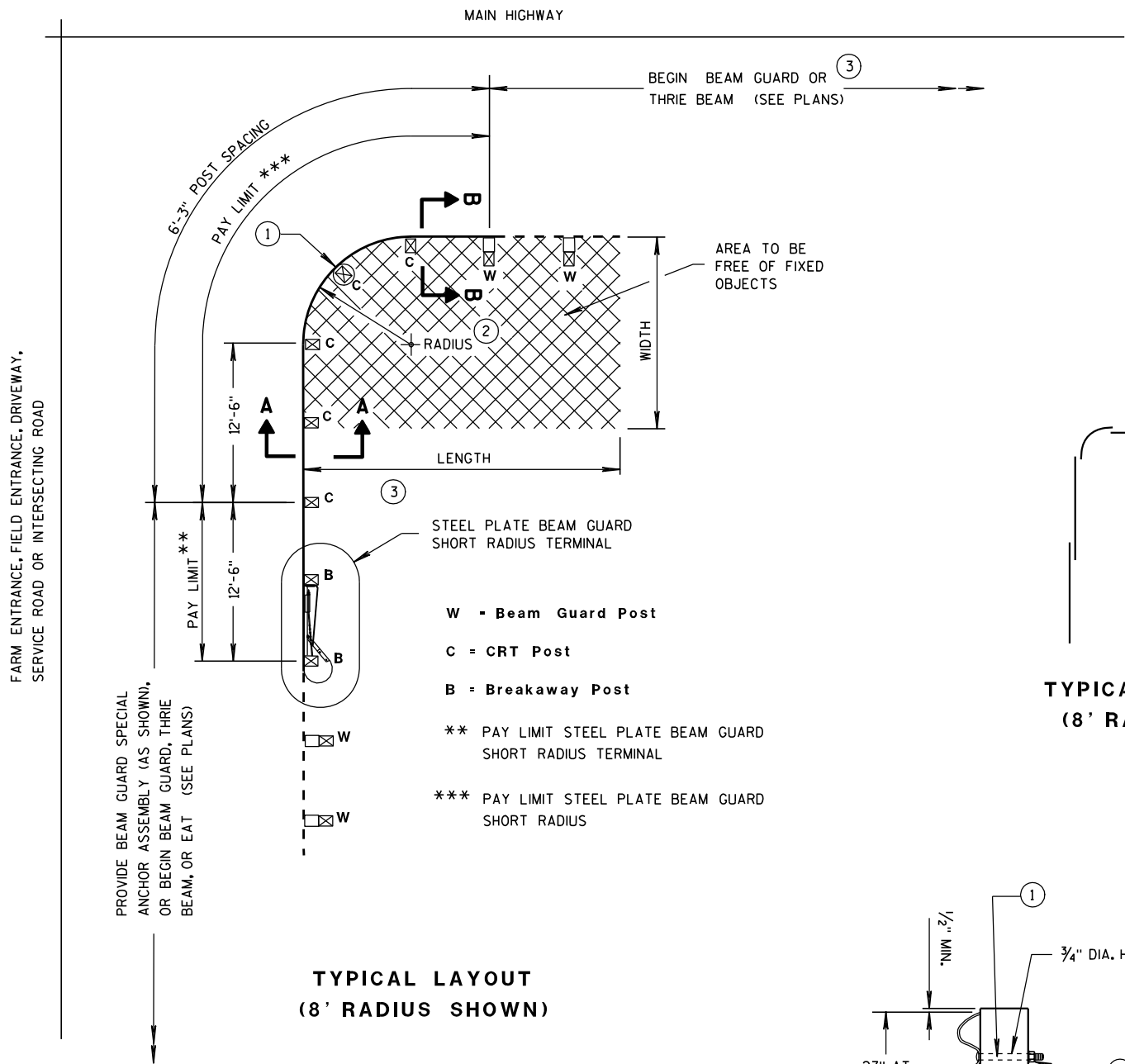
PLAN VIEW

THREE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

STEEL THREE BEAM STRUCTURE
APPROACH, CONNECTION TO
BRIDGE RAILING TYPE "M"

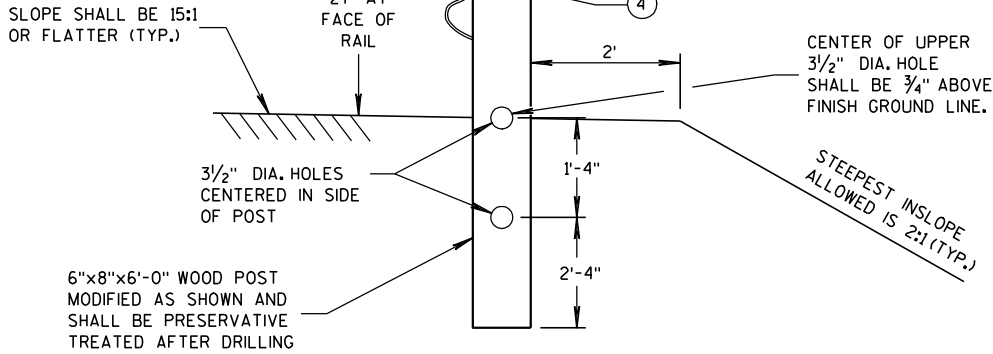
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER
22
FHWA



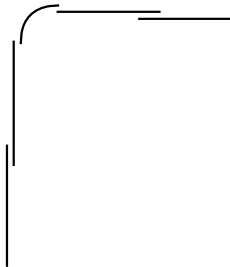
TYPICAL LAYOUT
(8' RADIUS SHOWN)

- W - Beam Guard Post
C = CRT Post
B = Breakaway Post
** PAY LIMIT STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
*** PAY LIMIT STEEL PLATE BEAM GUARD SHORT RADIUS



SECTION A-A
(CRT POST)

TYPICAL LAP SPLICES
(8' RADIUS SHOWN)



GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2, UNLESS NOTED OTHERWISE.

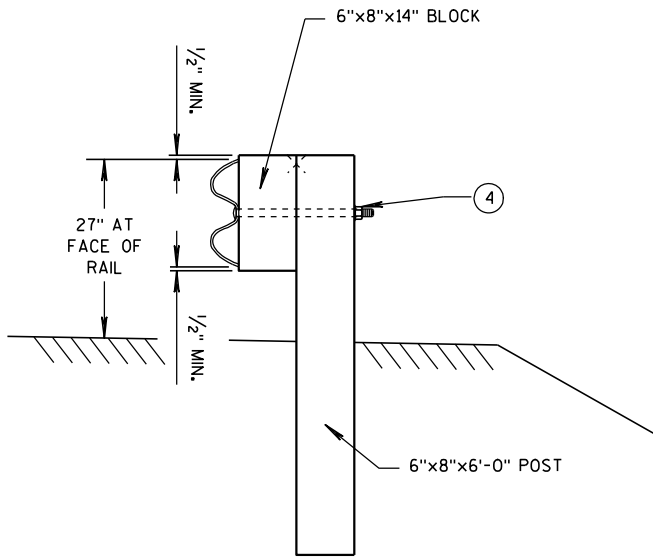
SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

- 1 ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.
- 2 RADIUS FROM 8' - 36'. SEE PLAN.
- 3 HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.
- 4 5/8" Ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	*NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH x WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

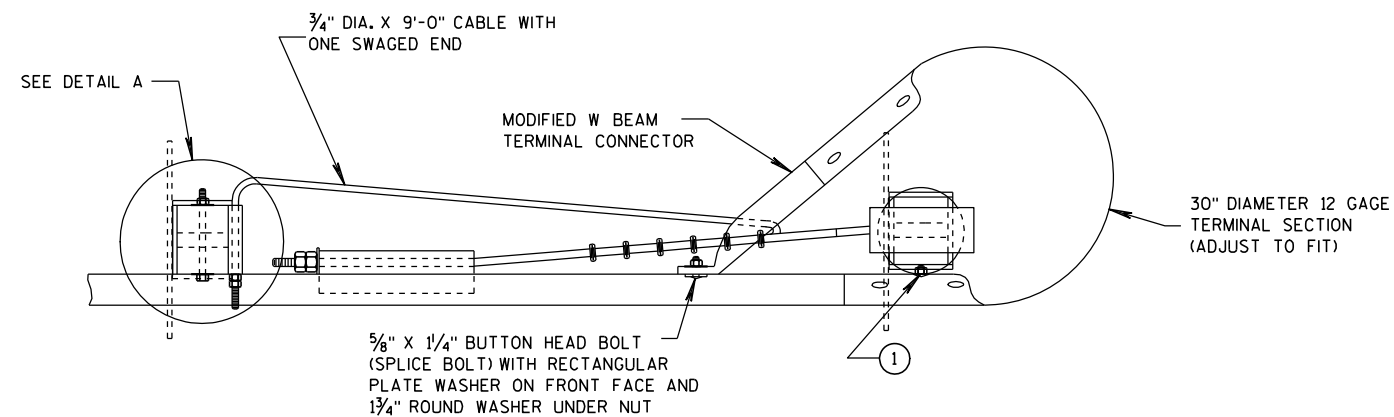
* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



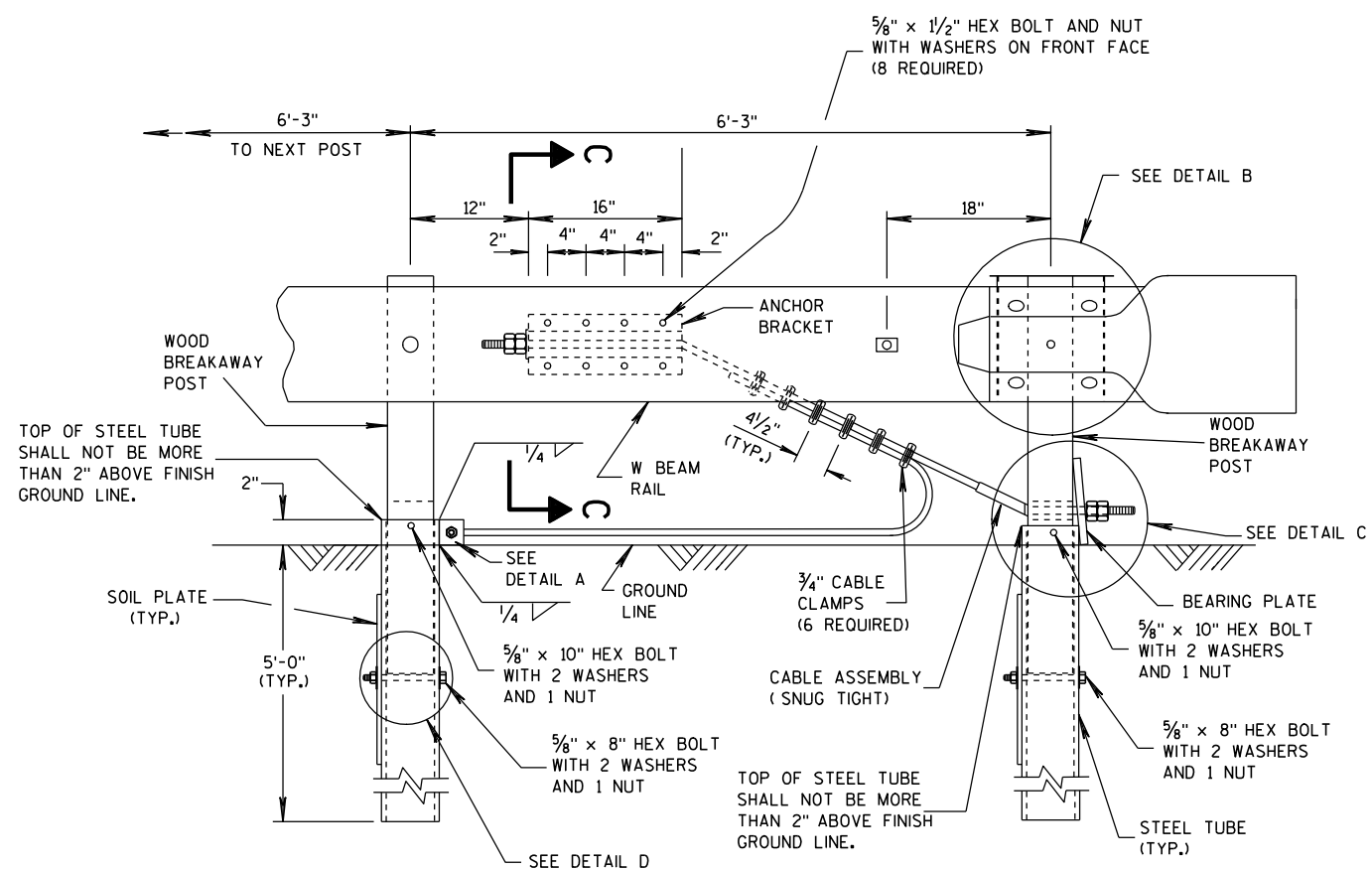
SECTION B-B
(BEAM GUARD POST)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

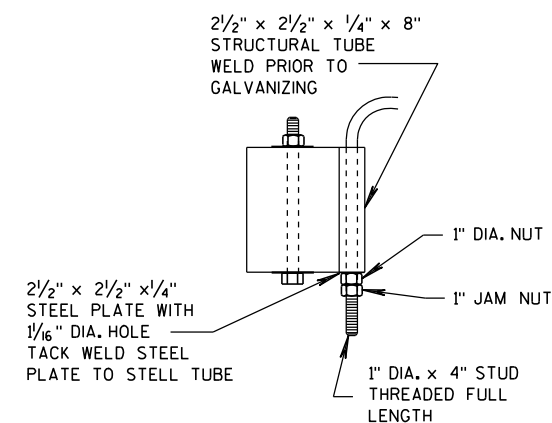


ELEVATION VIEW

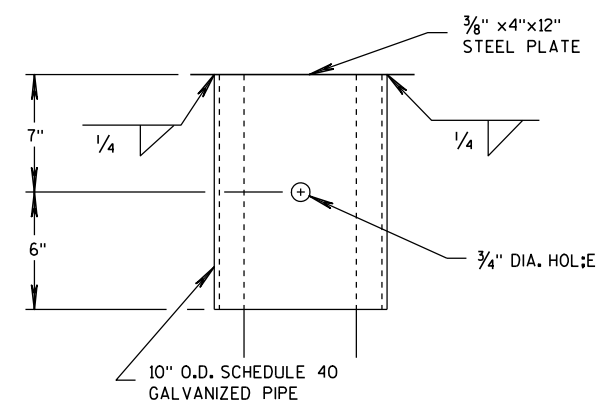
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

GENERAL NOTES

- 1 ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A $\frac{5}{8}$ " X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.
- INSTALL GALVANIZED $\frac{3}{4}$ " (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED FLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A



DETAIL B

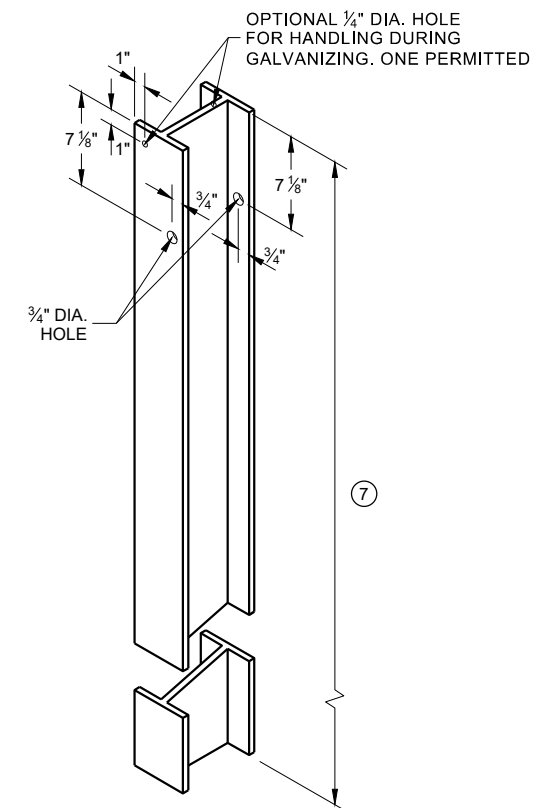
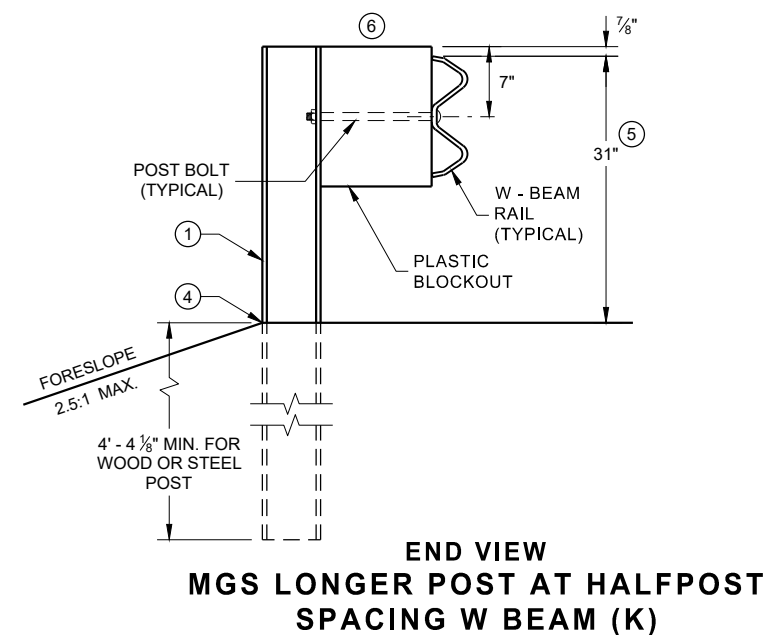
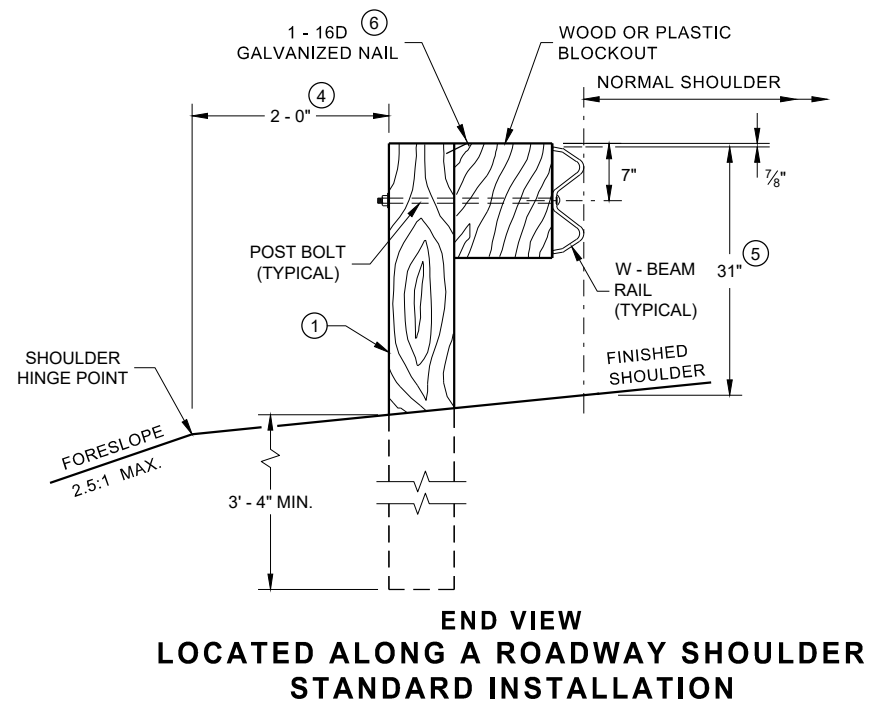
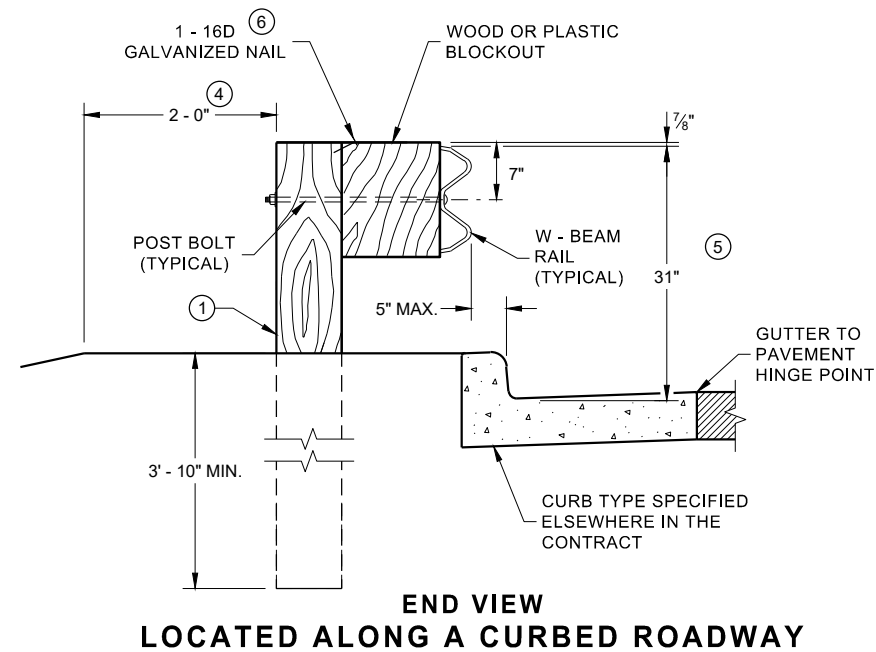
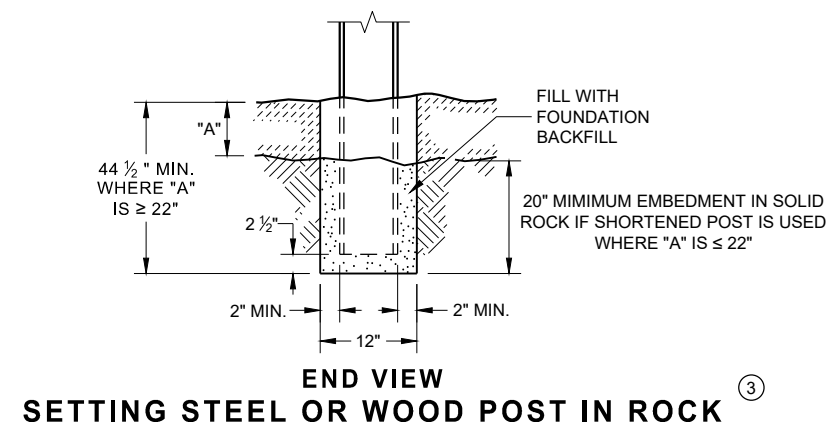
(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINALSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 12/18/08 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS ENGINEER 25 INT
FHWA	

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



**STEEL POST & HOLE
PUNCHING DETAIL
(W 6 X 9) ①**

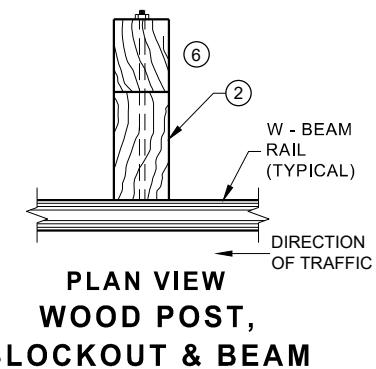
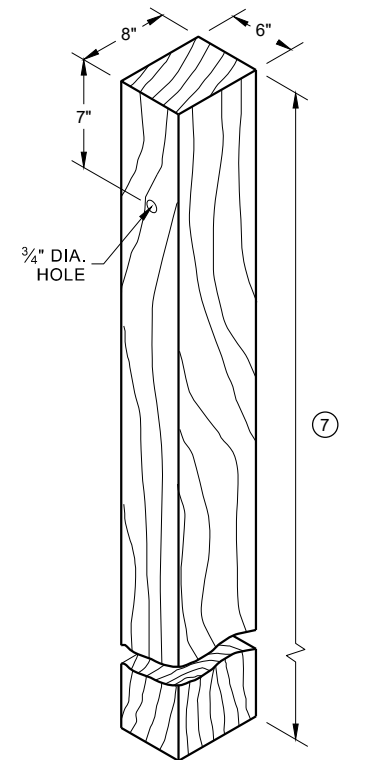
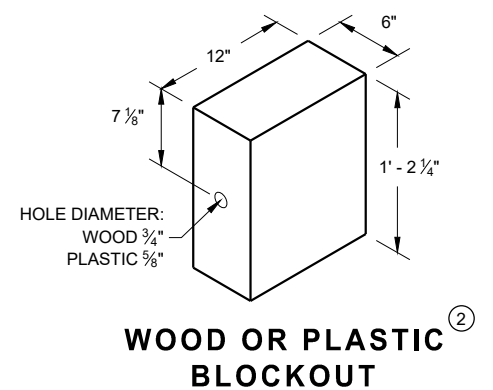


Diagram illustrating the plan view of a steel post, plastic blockout, and beam. The diagram shows a cross-section of a steel post (labeled 2) passing through a plastic blockout (labeled 1) and a W-beam rail (labeled 3). The beam is shown in a typical cross-section. The direction of traffic is indicated by an arrow pointing to the right. The distance between the center of the post and the center of the beam is labeled as 1 1/4 inches.

PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM



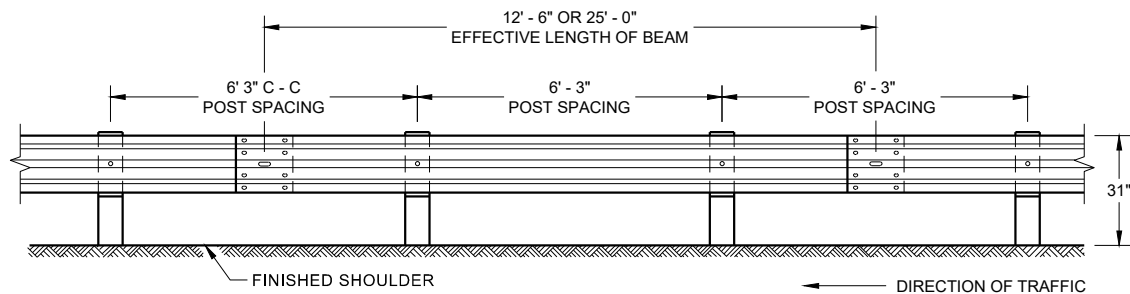
WOOD POST (6" X 8") NOMINAL ^①



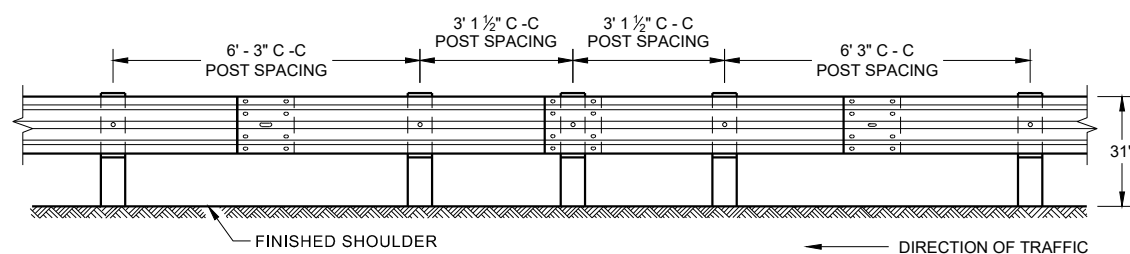
**WOOD OR PLASTIC
BLOCKOUT**

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

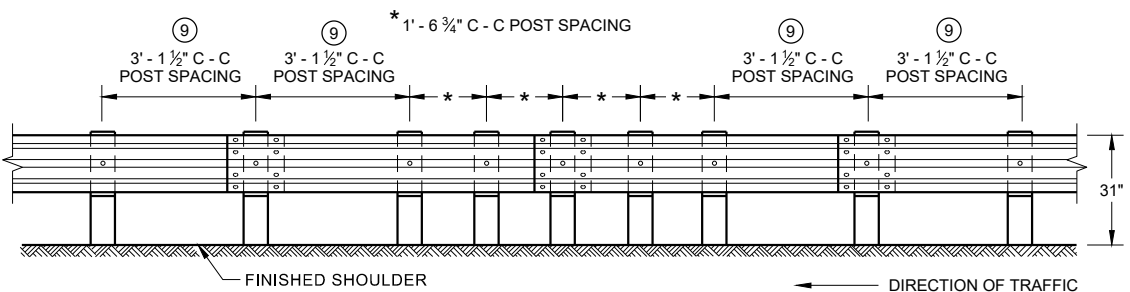
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 26



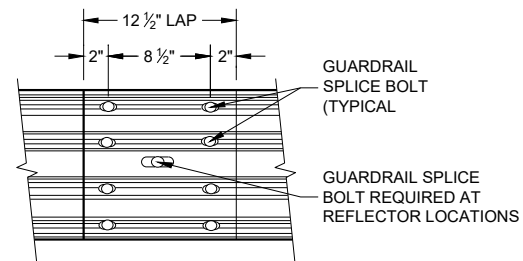
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



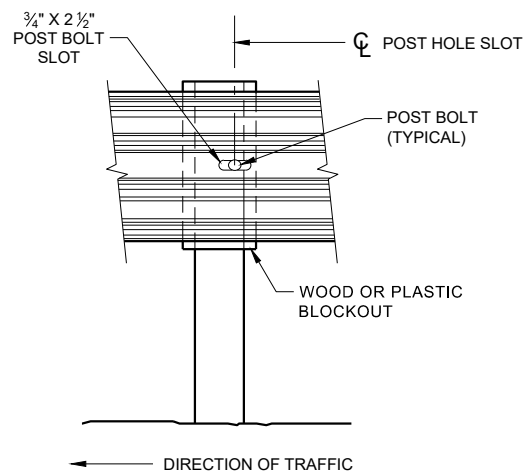
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



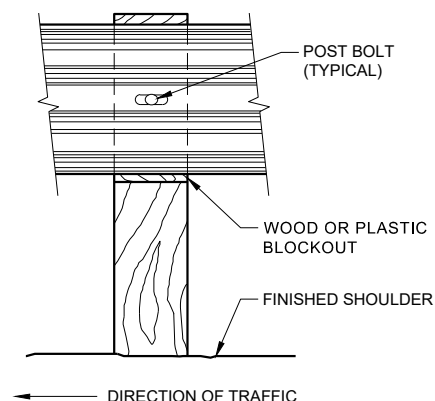
**FRONT VIEW
QUARTER POST SPACING (QS)**



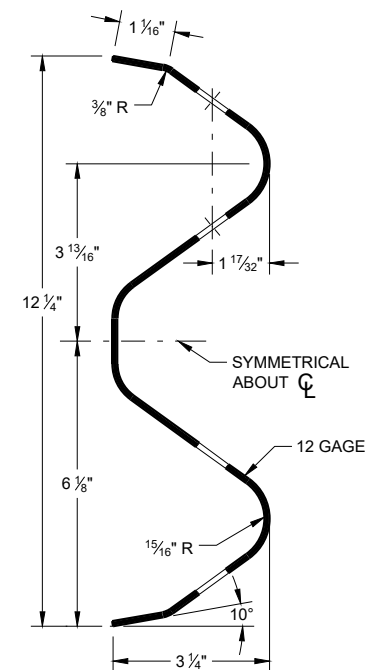
**FRONT VIEW
MID-SPAN BEAM SPLICE**



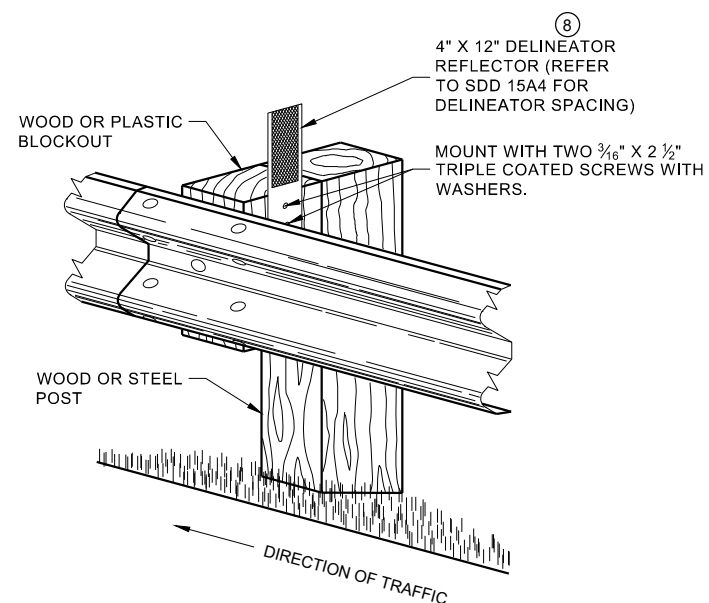
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

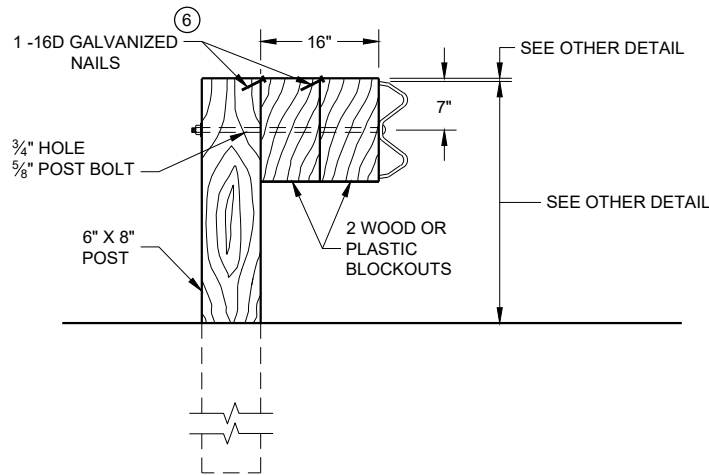
- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

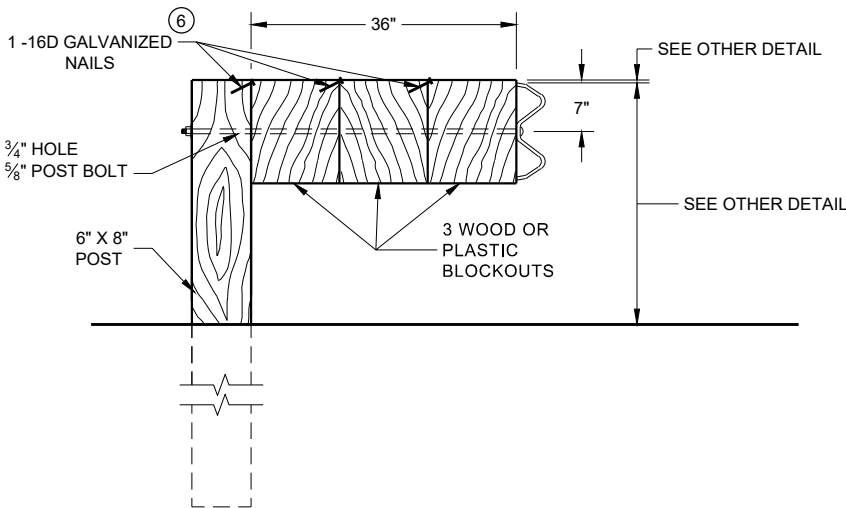
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

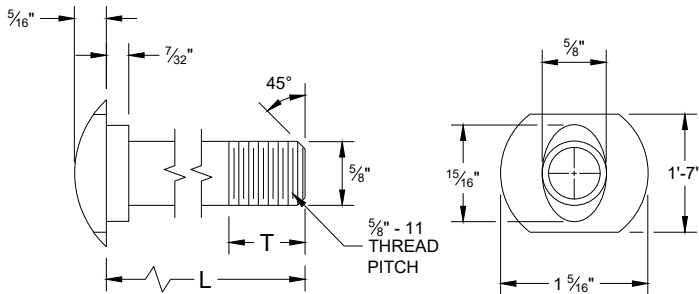
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

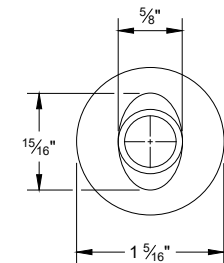
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

- NOTE:
- 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
 - 2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

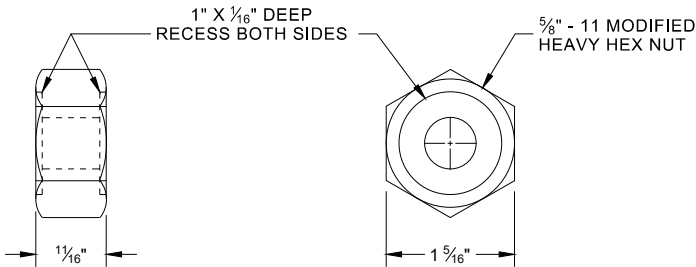


POST BOLT TABLE

L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"

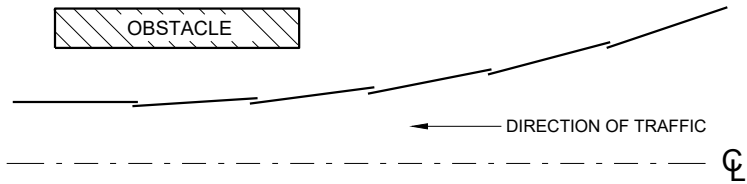


ALTERNATE BOLT HEAD

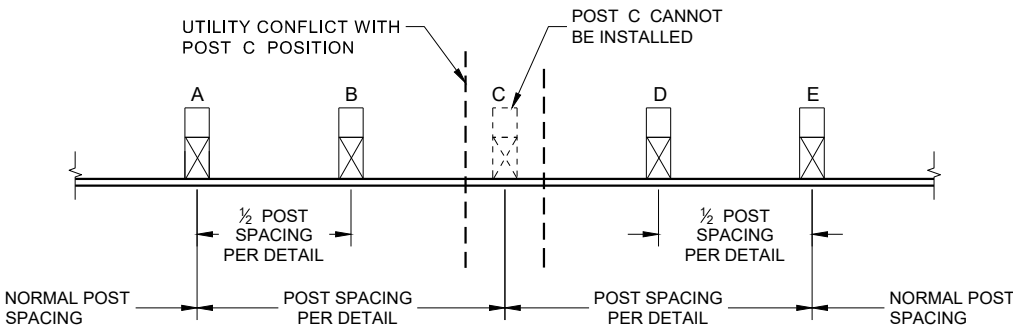


POST BOLT, SPLICE BOLT
AND RECESS NUT

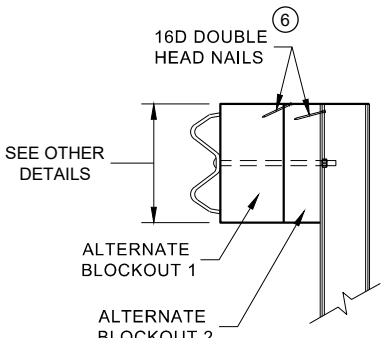
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



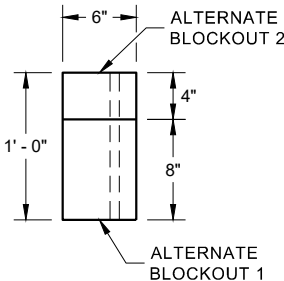
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

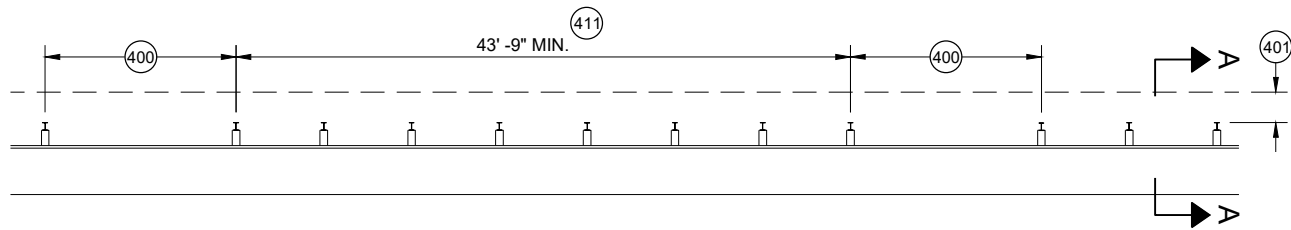


PLAN VIEW

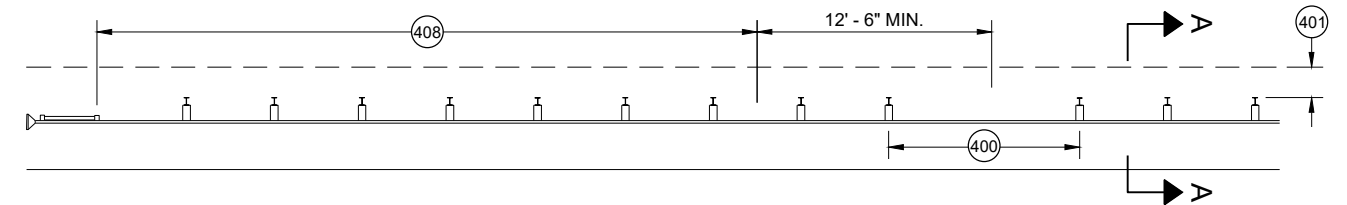
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

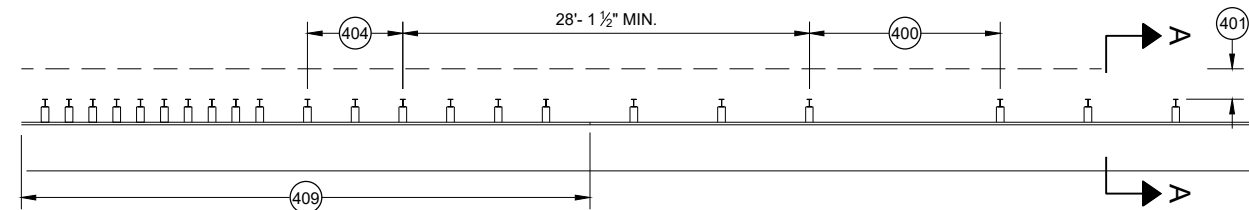
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



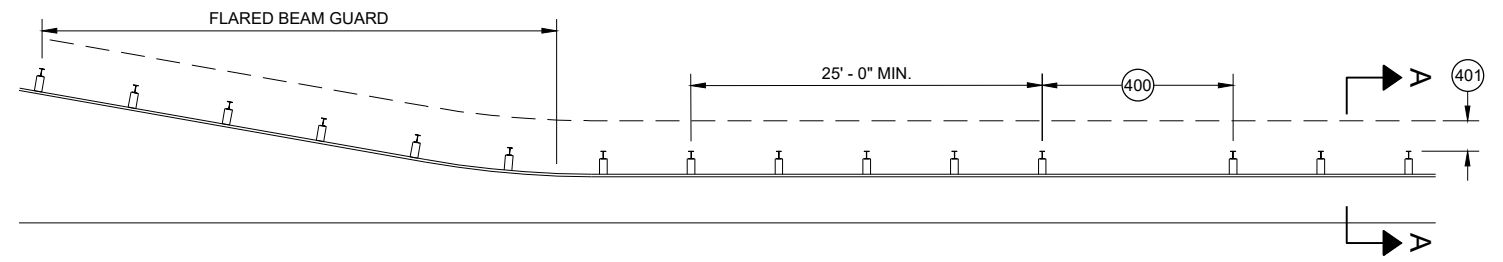
MISSING POST IN MGS GUARDRAIL



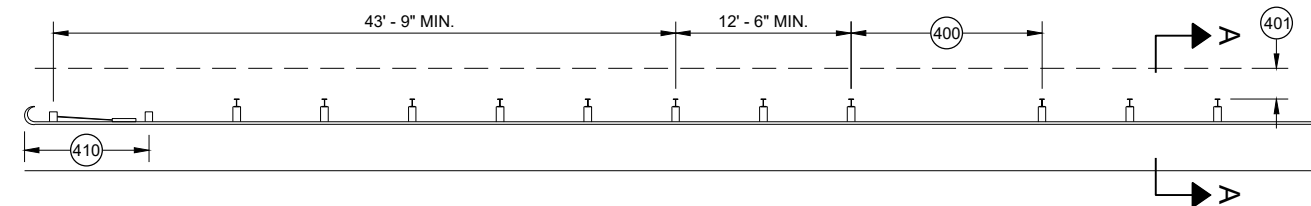
MISSING POST IN MGS GUARDRAIL NEAR EAT



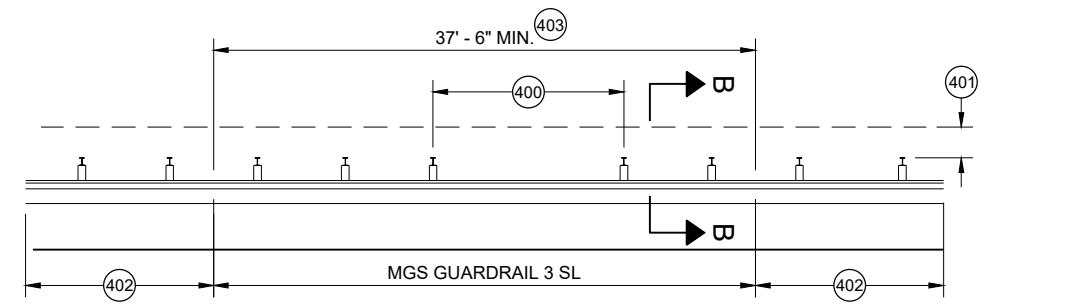
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

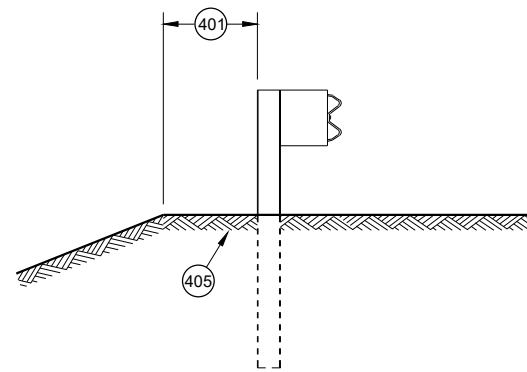


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

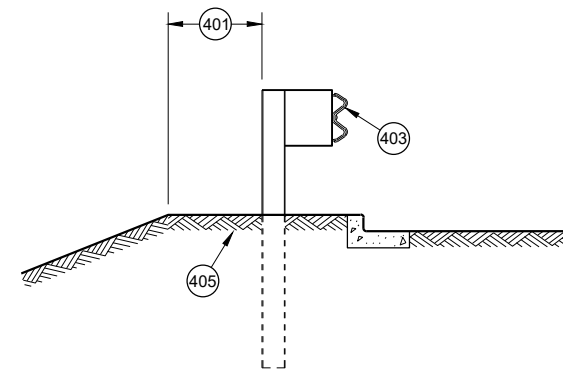


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (400) MAX SPAN 12' - 6"
- (401) 2' MIN.
- (402) MGS GUARDRAIL 3
- (403) NESTING BEAM GUARD
- (404) ASYMMETRIC TRANSITION
- (405) SOIL WELL DRAINED AND COMPACTED
- (406) SEE OTHER DRAWINGS IN THIS SDD
- (407) SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- (408) SEE SDD 14B44
- (409) SEE SDD 14B45
- (410) SEE SDD 14B47
- (411) MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



SECTION A - A



SECTION B - B

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA

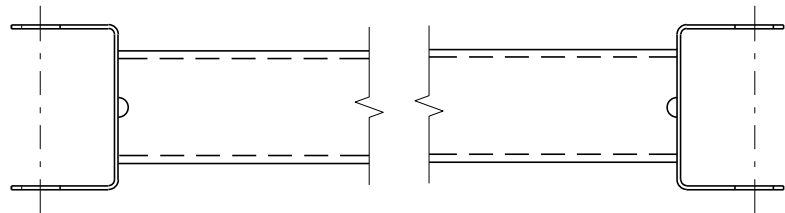
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
- (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
- (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

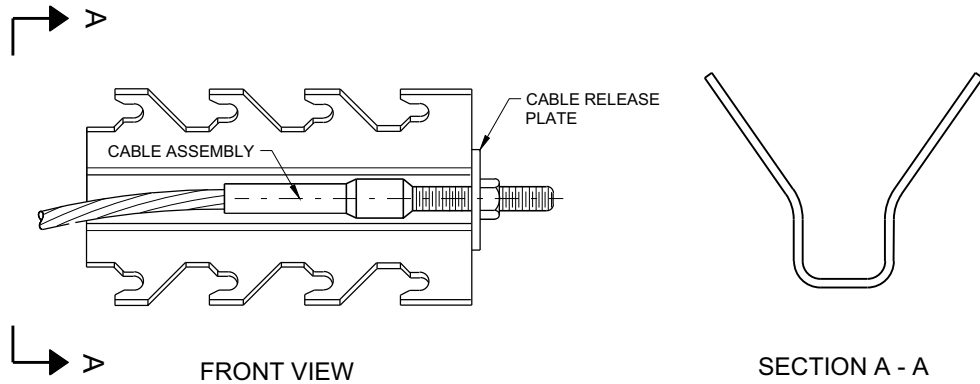


STATE OF WISCONSIN
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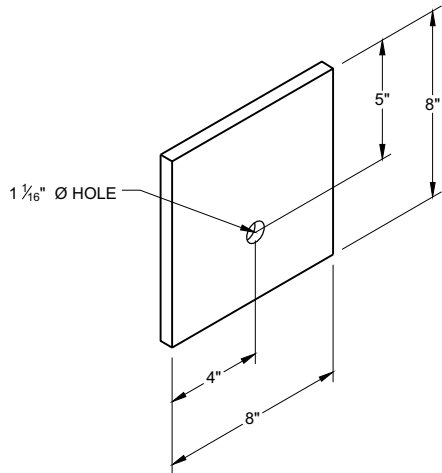


GENERIC GROUND STRUT⁹ ^E

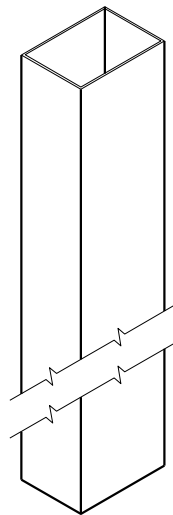
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



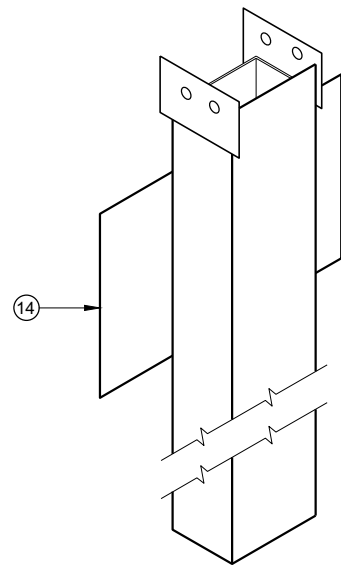
GENERIC ANCHOR CABLE BOX⁹ ^E



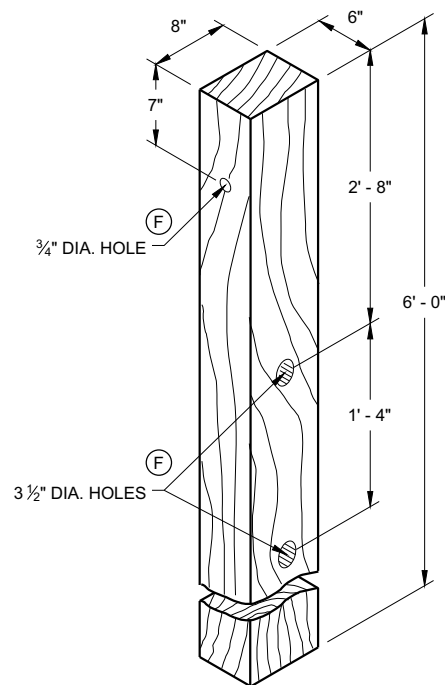
BEARING PLATE⁶ ^E



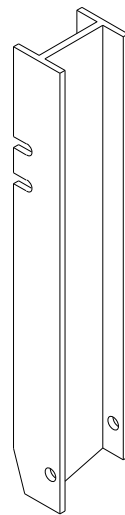
UPPER POST NO. 1 ⁽¹⁾ (E)



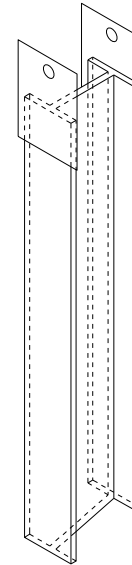
LOWER POST NO. 1 ⁽²⁾ (E)



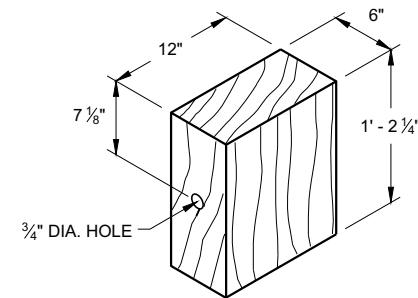
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



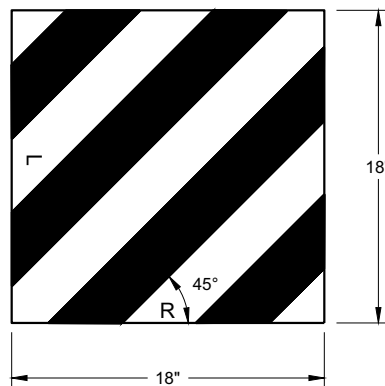
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



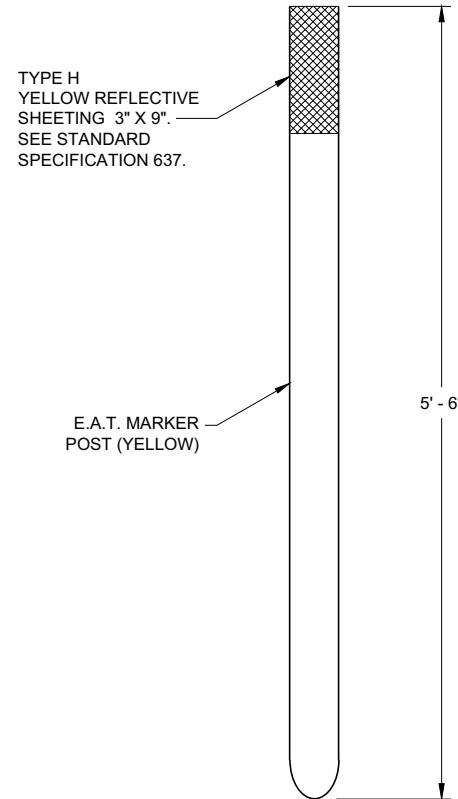
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



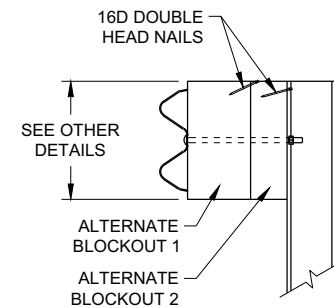
REFLECTIVE SHEETING DETAIL ^(E)



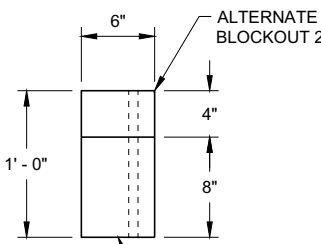
FRONT VIEW

SIDE VIEW

E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



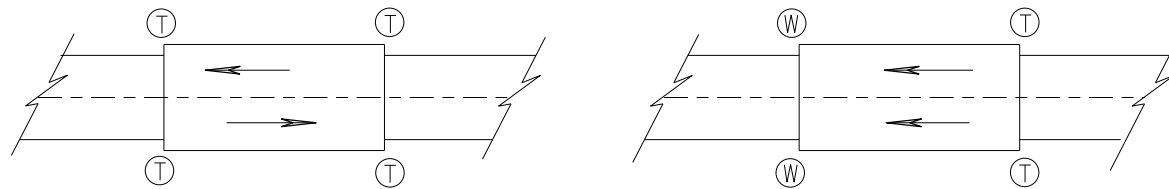
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

GENERAL NOTES

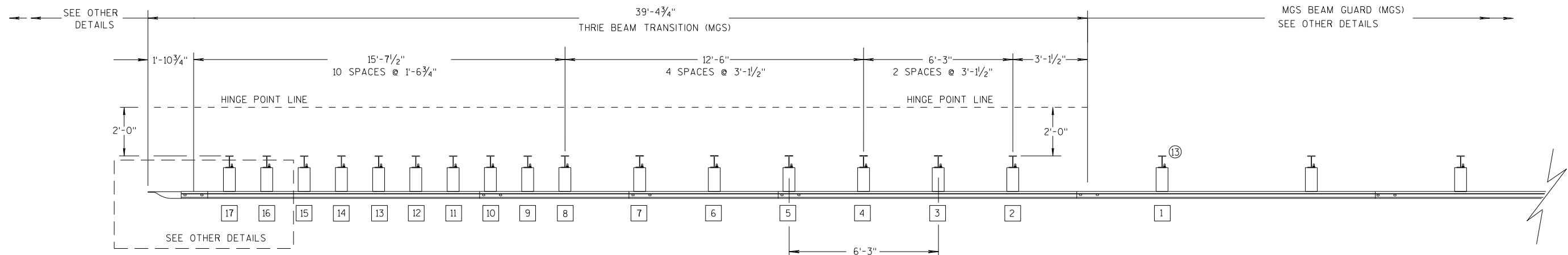
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

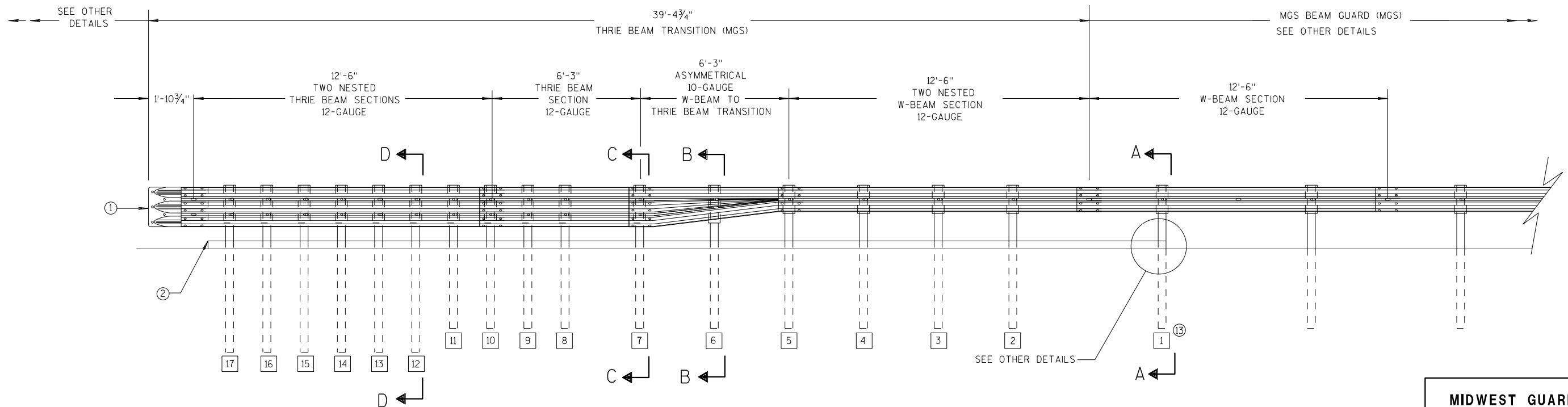
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

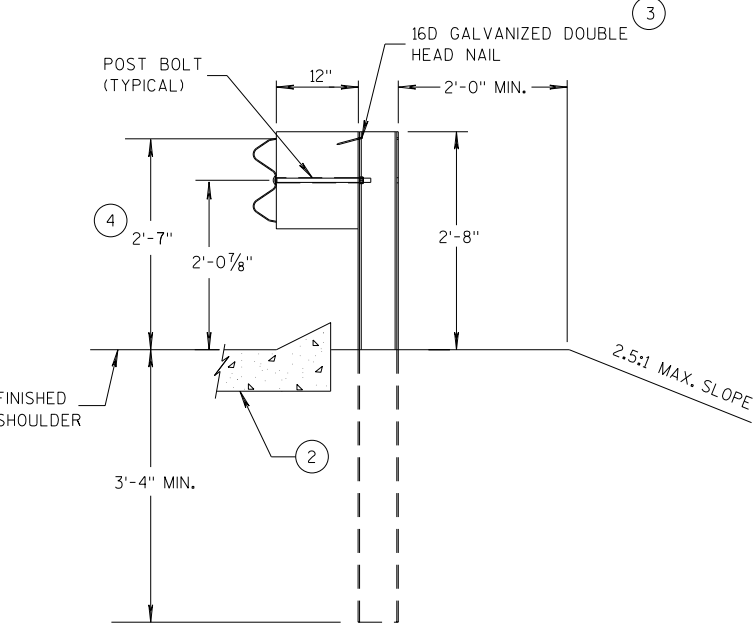
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

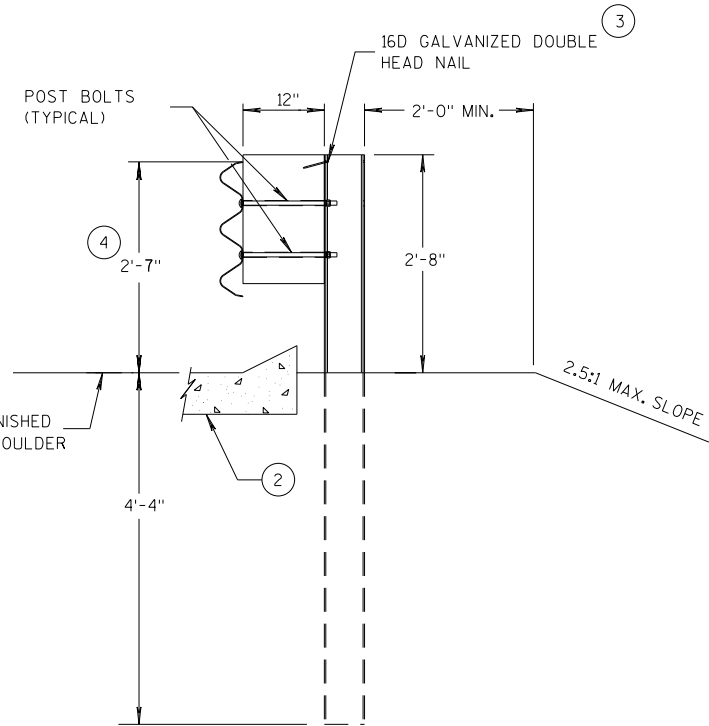
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

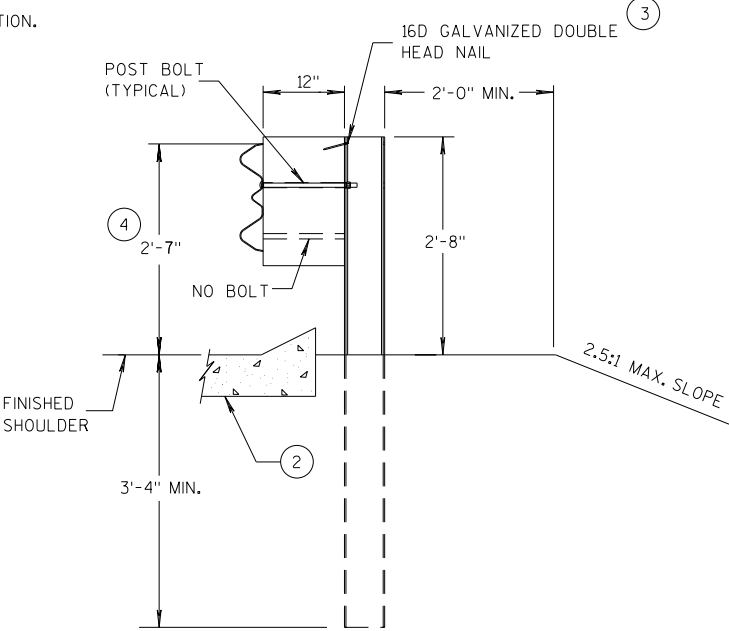
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.
- 13 STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



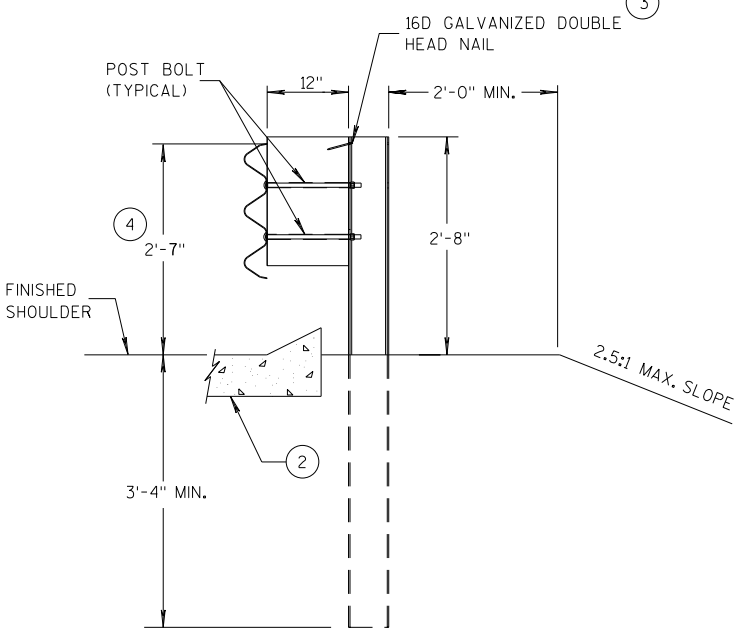
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

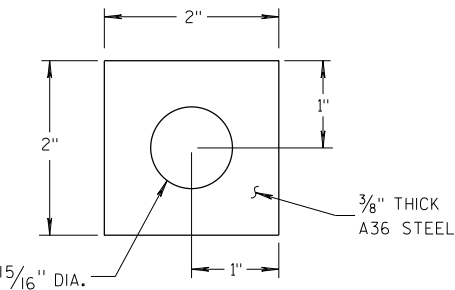
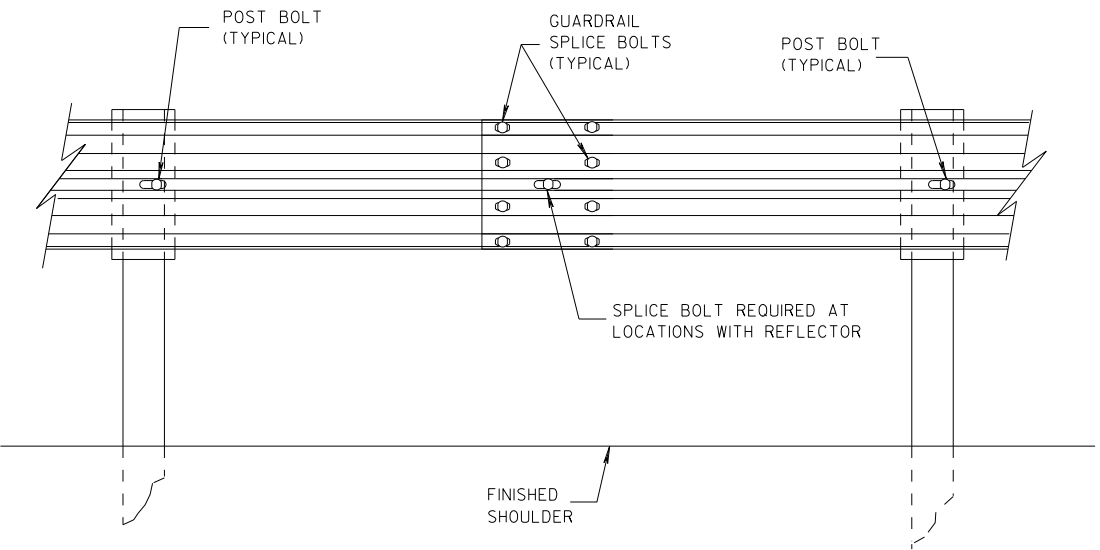
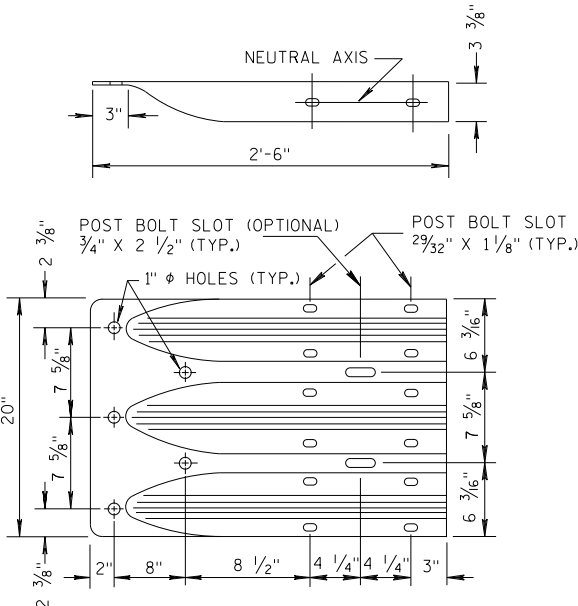


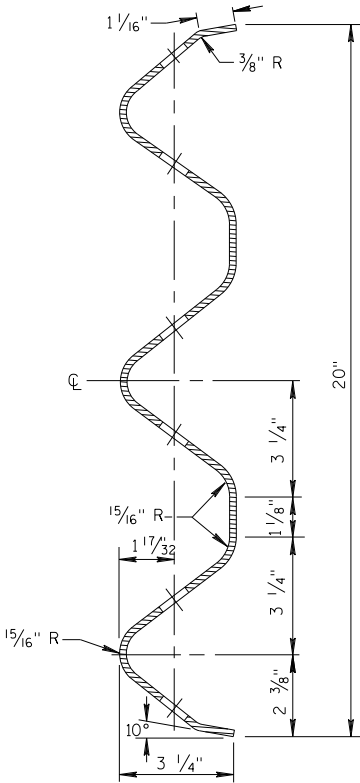
PLATE WASHER DETAIL



SPlice DETAIL



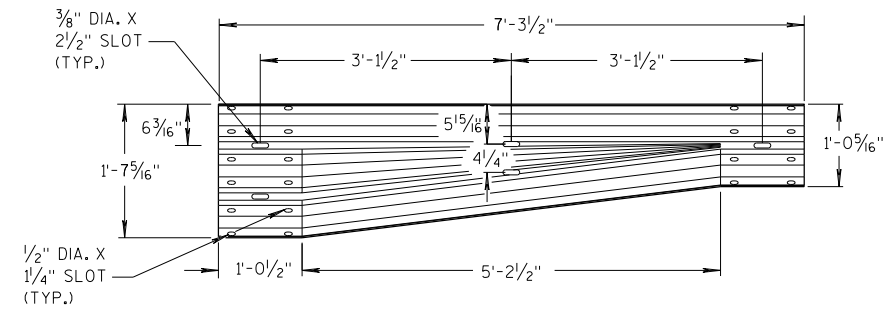
THRIE BEAM
TERMINAL CONNECTOR



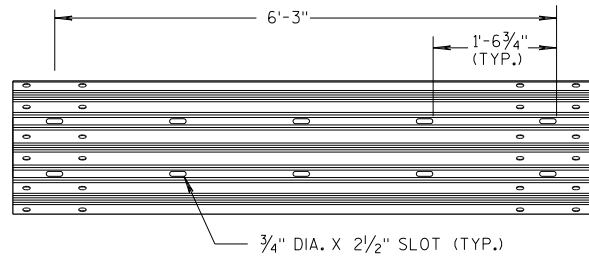
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

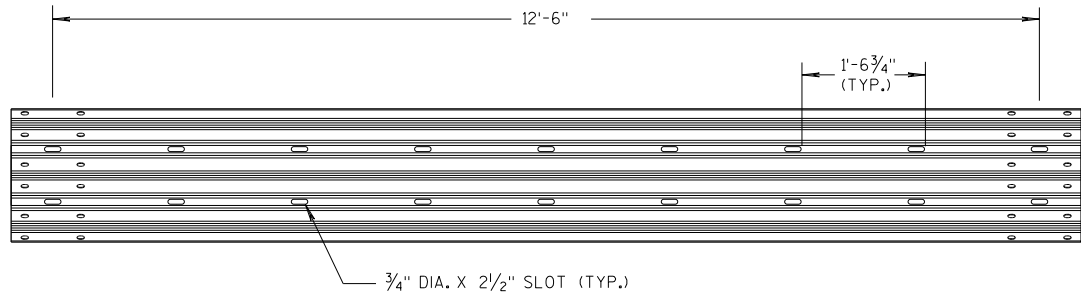
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



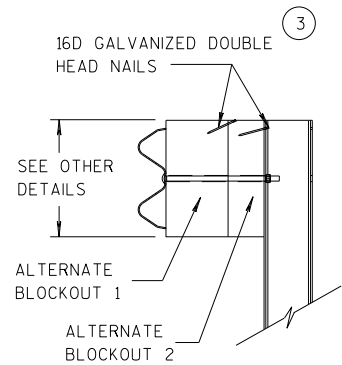
W-BEAM TO THRIE BEAM TRANSITION SECTION



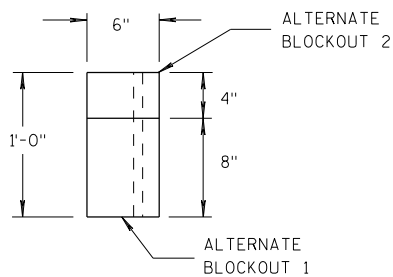
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

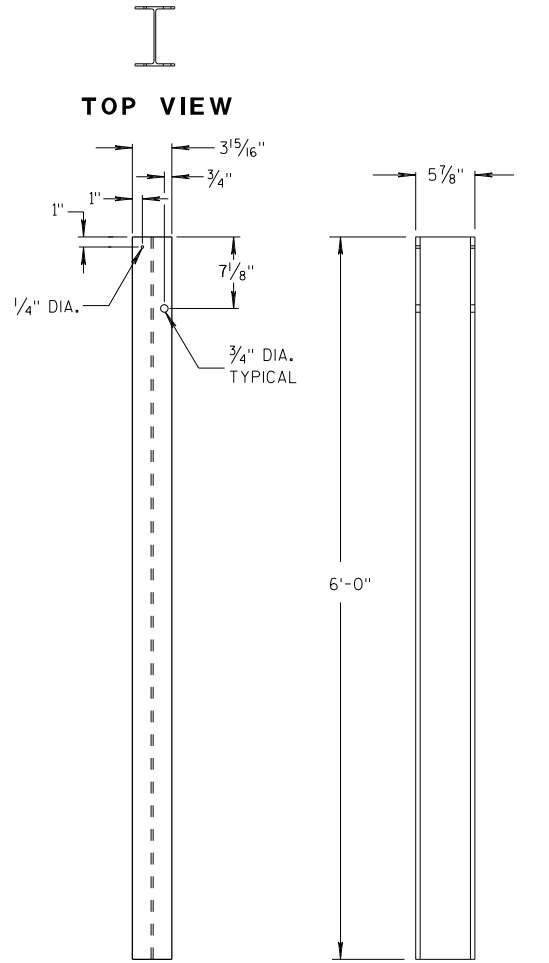


SIDE VIEW



TOP VIEW

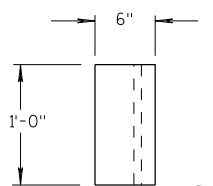
ALTERNATE WOOD BLOCKOUT DETAIL



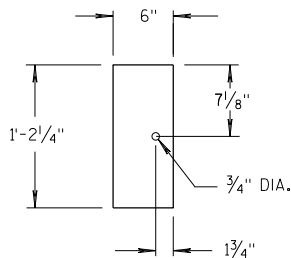
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

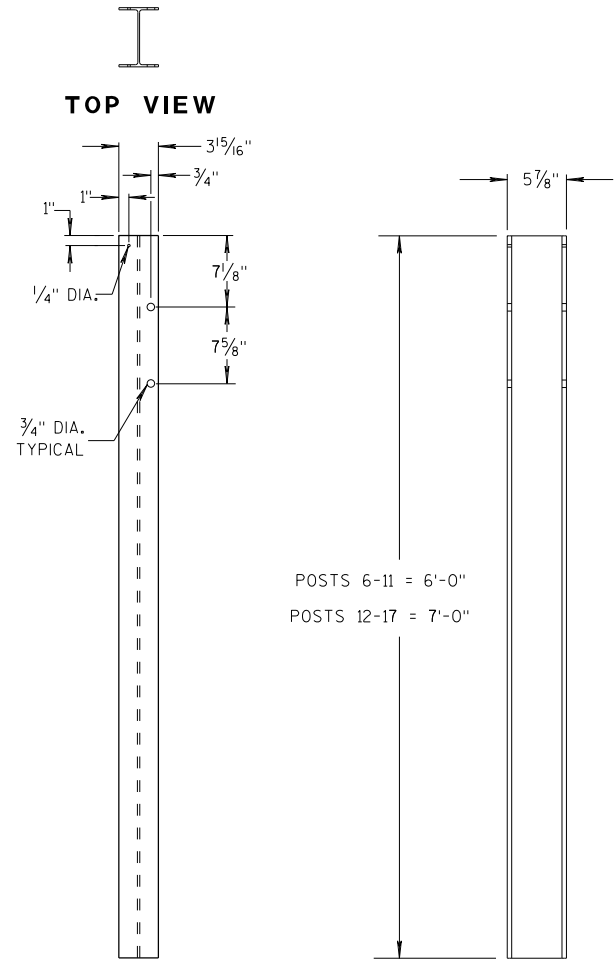


TOP VIEW



FRONT VIEW

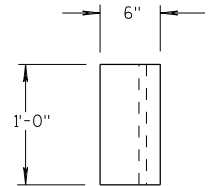
BLOCKOUT POSTS 1-5



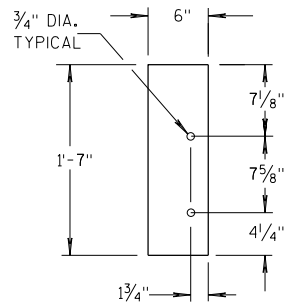
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

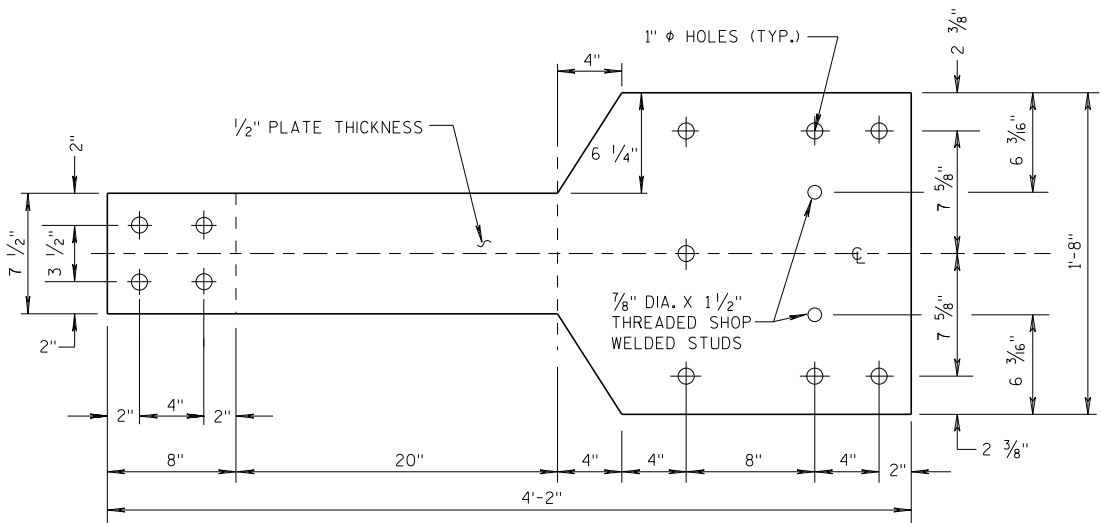
(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

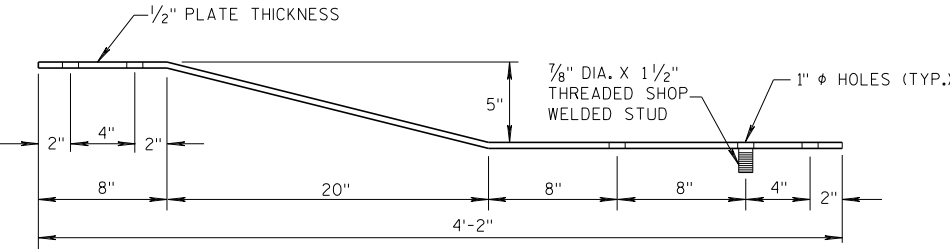
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.

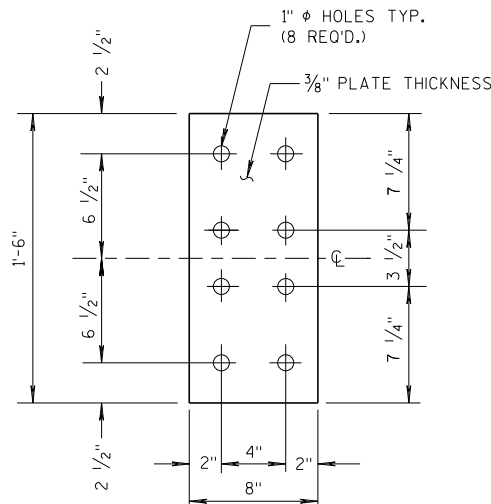


FRONT VIEW



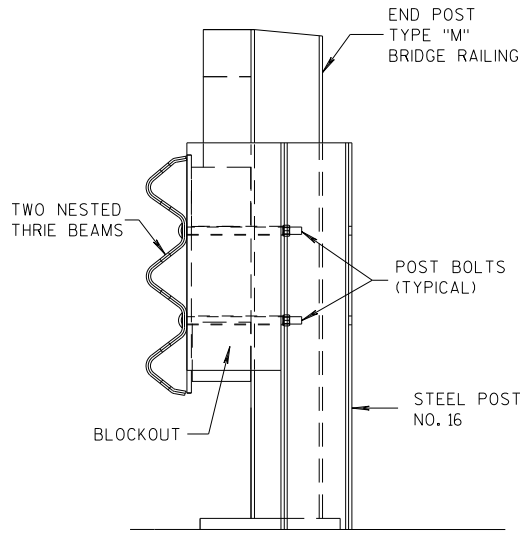
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

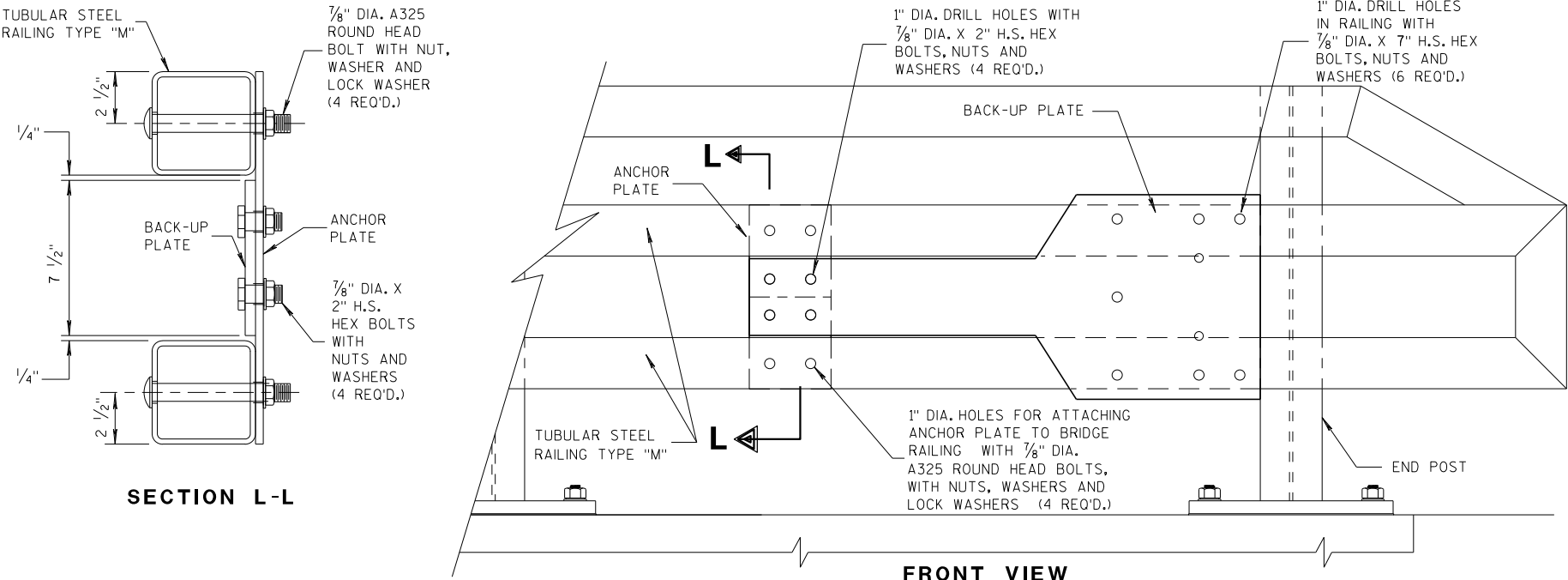


FRONT VIEW

ANCHOR
PLATE DETAIL,
TYPE "M"



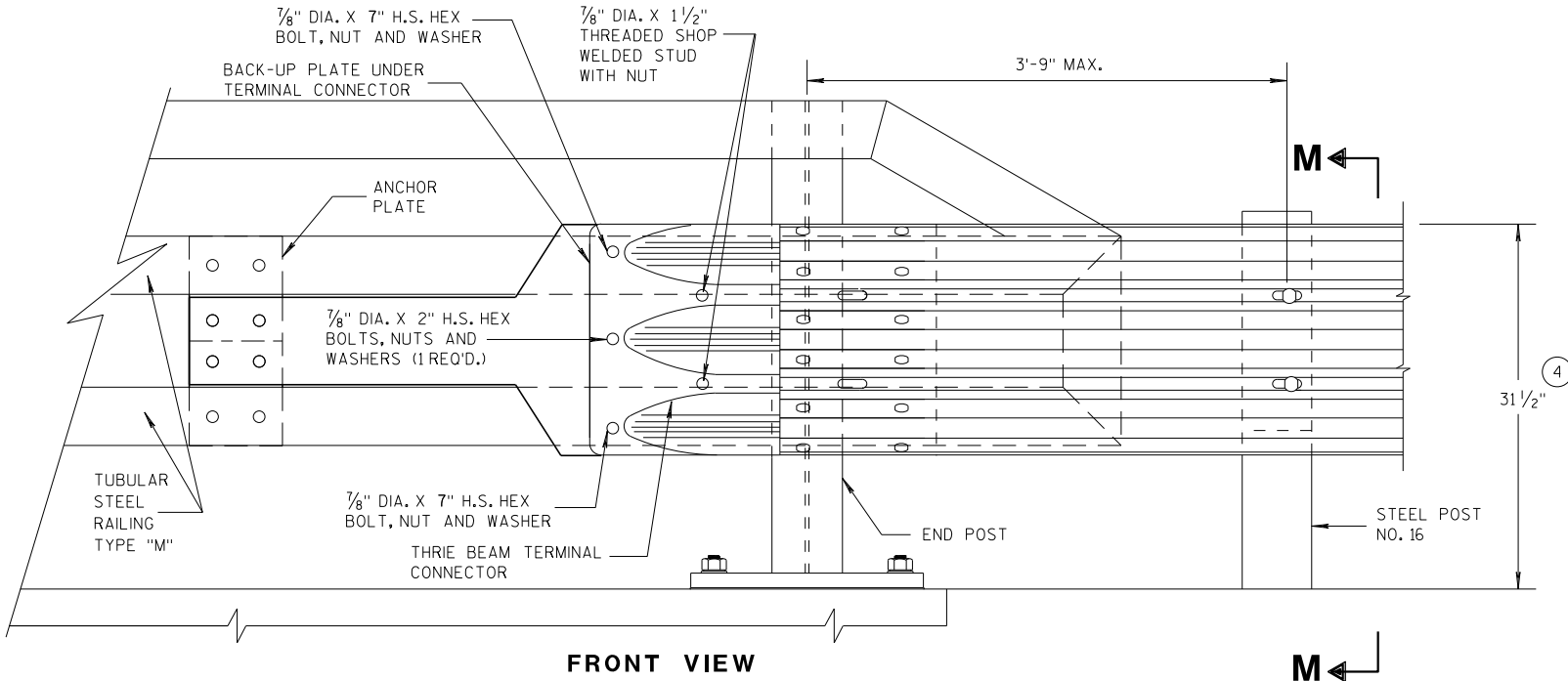
SECTION M-M



SECTION L-L

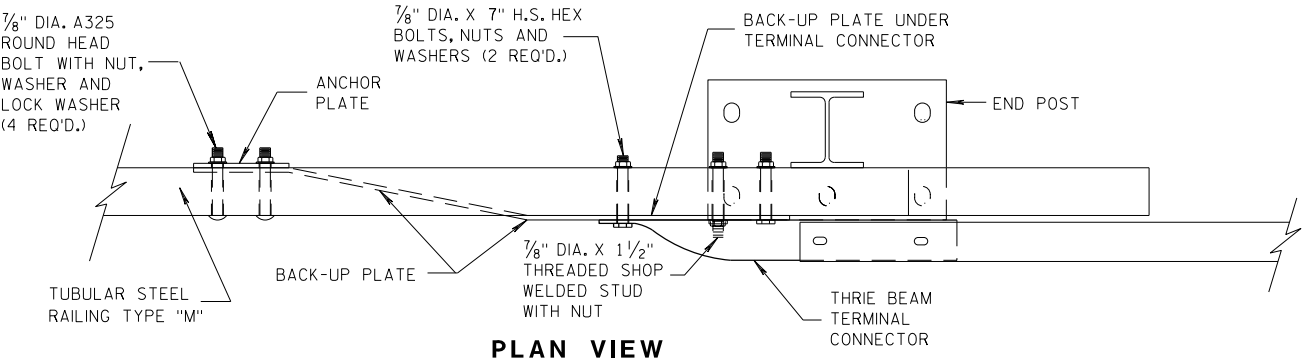
FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW

M



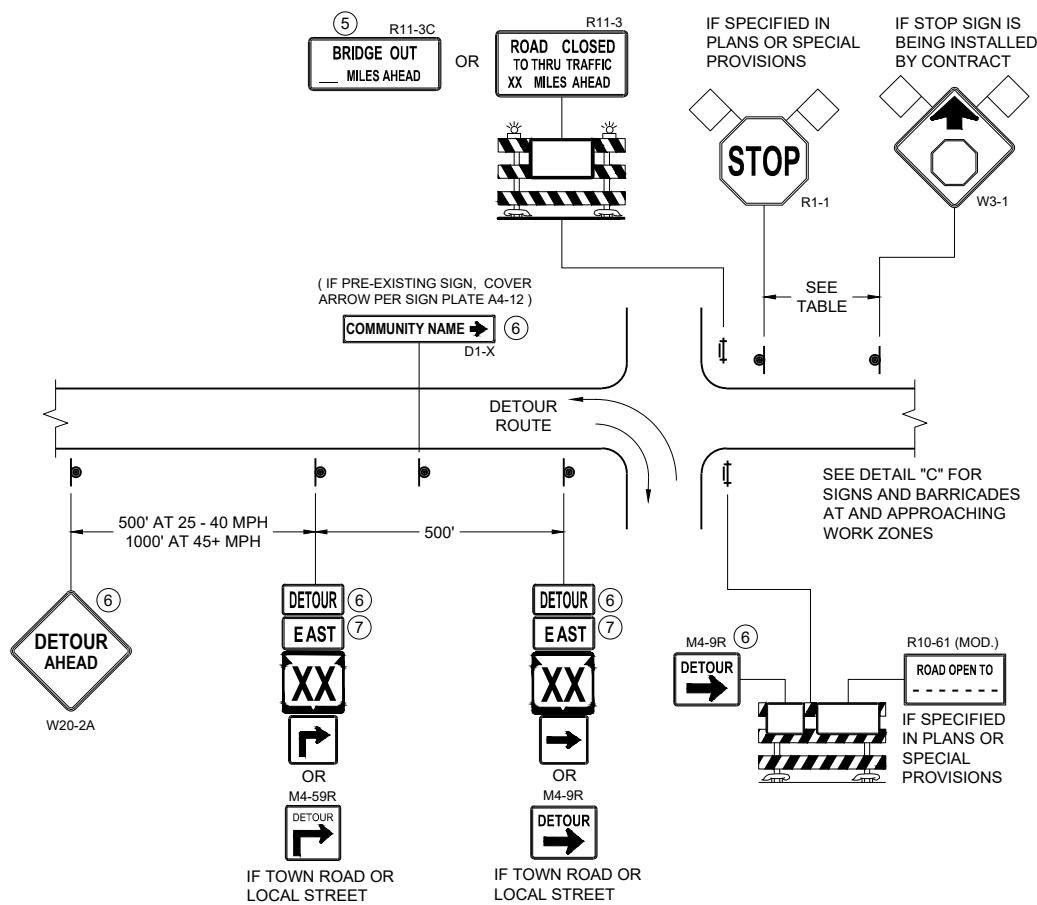
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

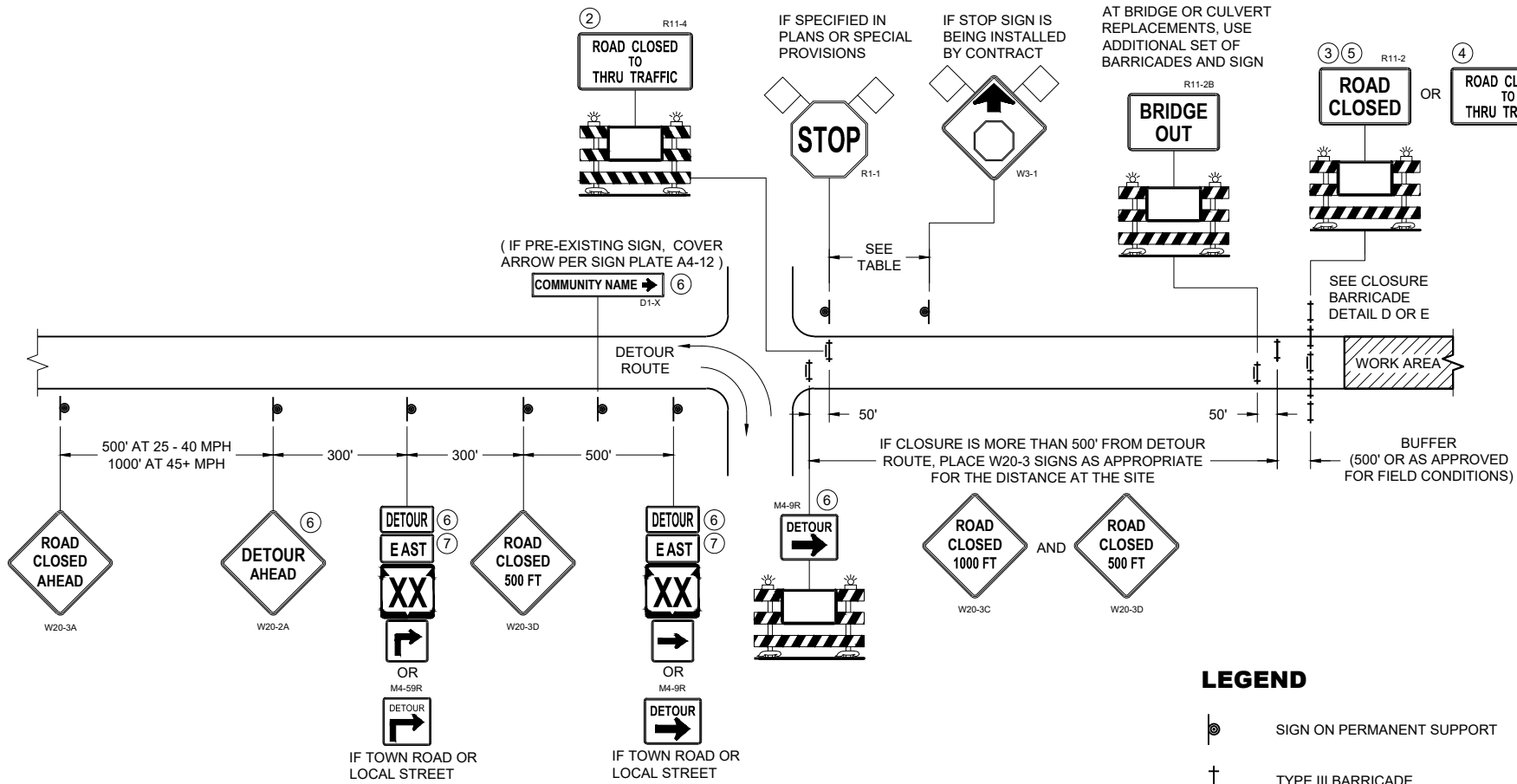
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

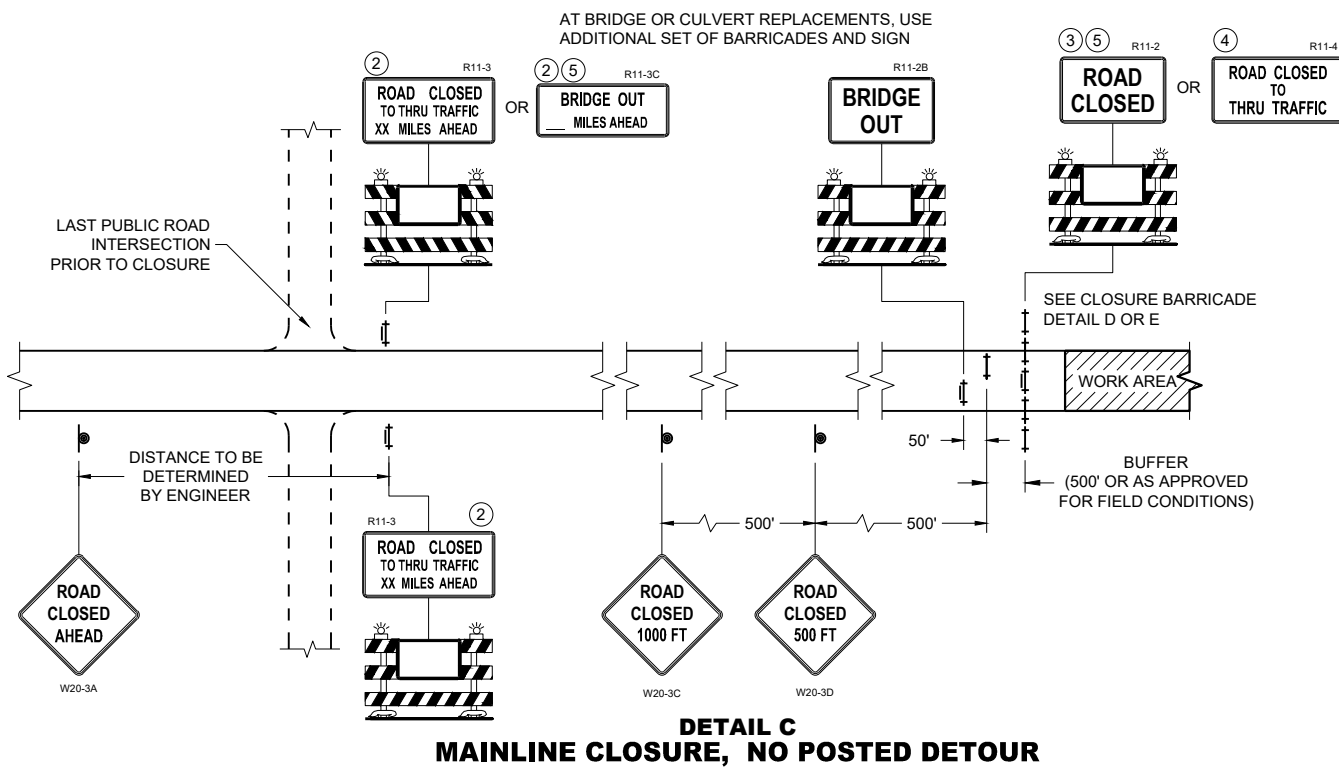
APPROVED
07/2018 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERVISOR
FHWA 36 ENT



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

- DETOUR M4 - 8
- EAST M3 - X
- XX M1 - 4 OR XX M1 - 6 OR COUNTY M1 - 5A
- M05 - 1 OR M06 - 1

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

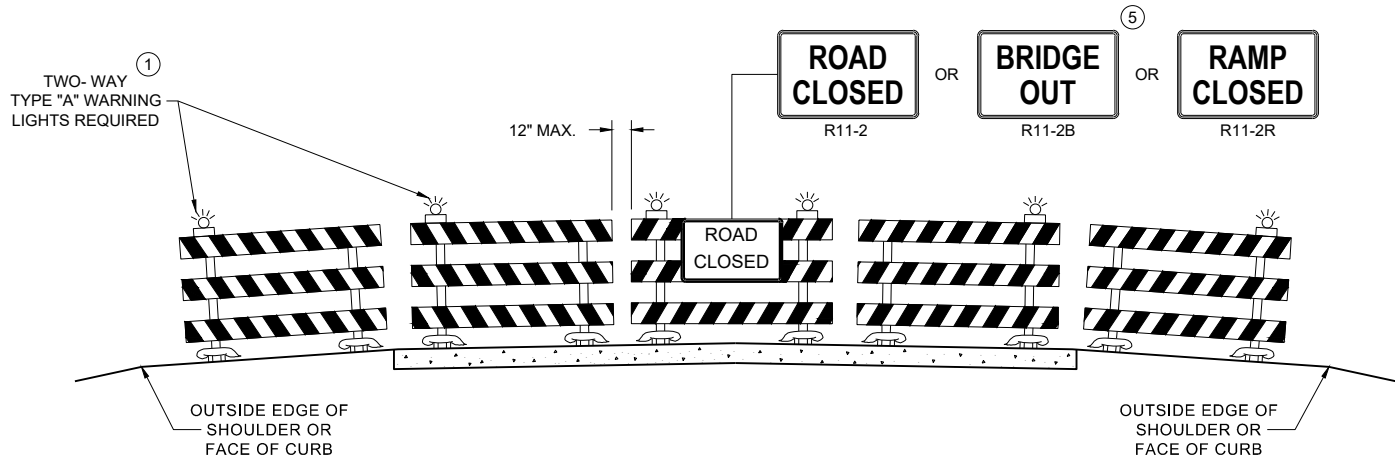
SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

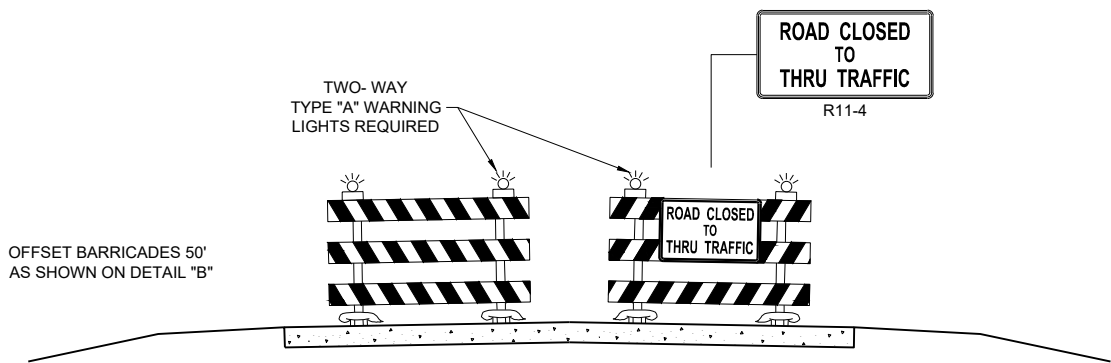
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE", SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW - INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

PARTIAL NUMBERS ON SIGNS SHALL BE DISPLAYED AS A WHOLE NUMBER(AS NEEDED) FOLLOWED BY A FRACTION. SIGNS SHALL NOT DISPLAY NUMBERS IN DECIMAL FORM.

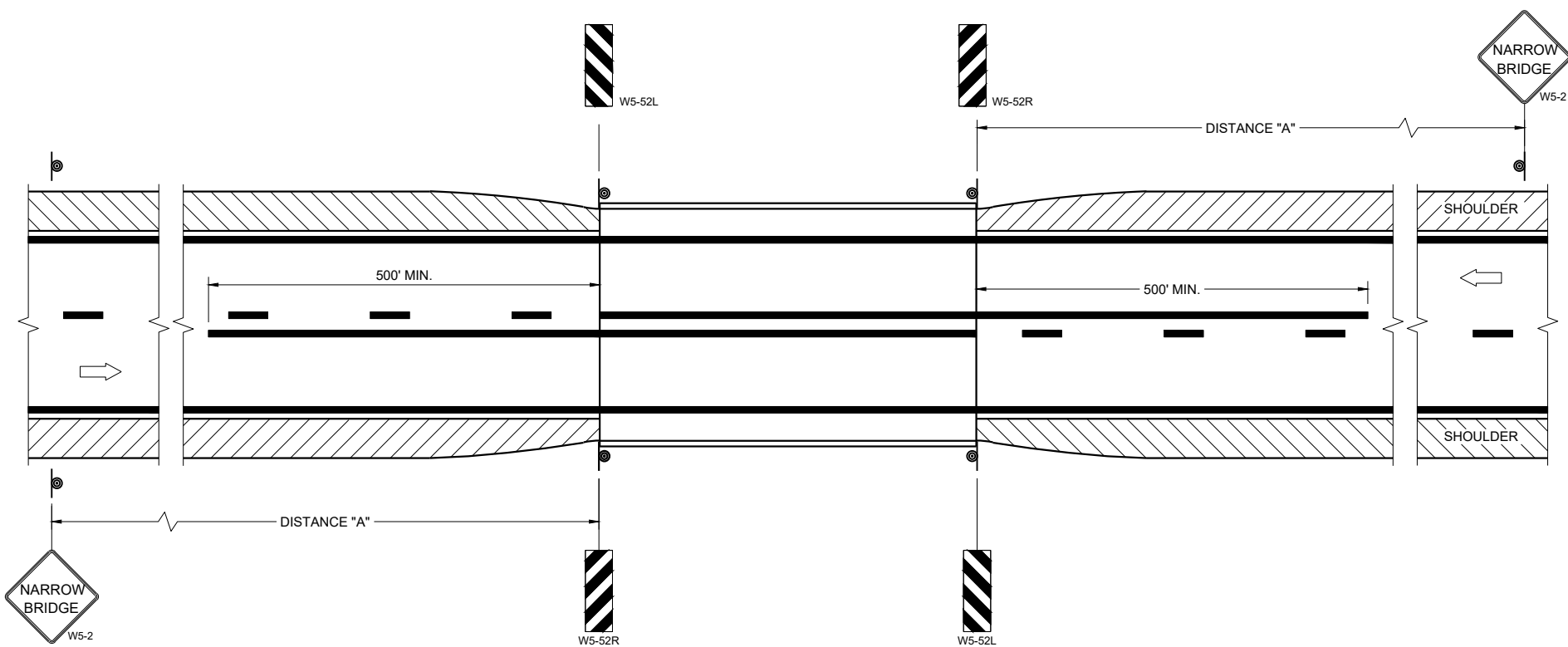
"WO" AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11 - 2 SHALL BE 48" X 30"
R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
M4 - 9 SHALL BE 30" X 24"
M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
R1 - 1 SHALL BE 36" X 36"

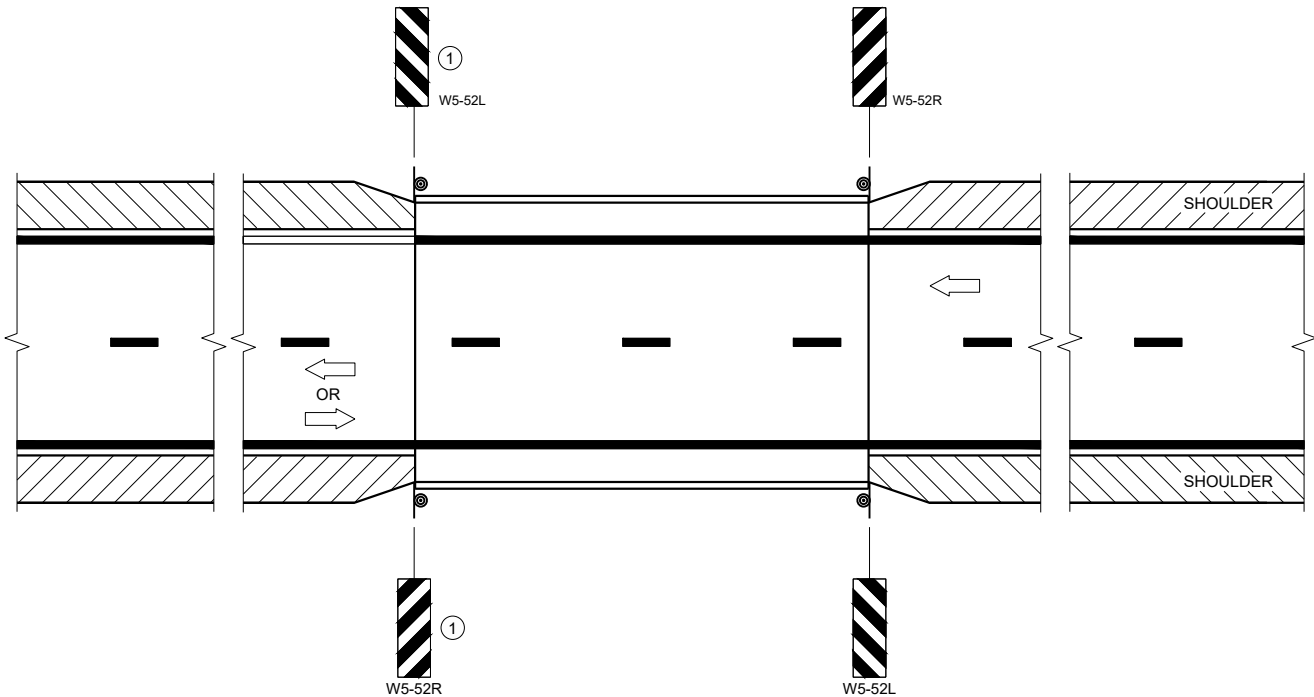
SIGNS PLACED ON TYPE III BARRICADES THAT ARE SIZES OTHER THAN 48"X30" SHALL HAVE A CORRUGATED POLYPROPYLENE OR POLYETHYLENE PLASTIC SIGN BASE.

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR VARIOUS CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2025 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



SITUATION 1
WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



SITUATION 2
WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THE DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	700'

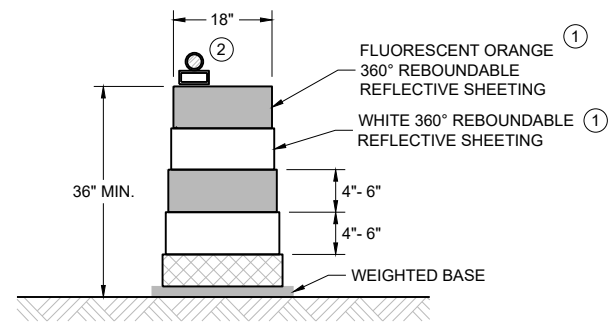
**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

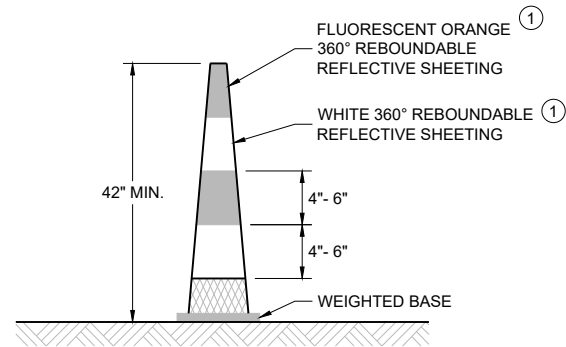
APPROVED
May 2023
DATE

/S/ Jeannie Silver
Statewide Pavement Marking Engineer

FHWA 39

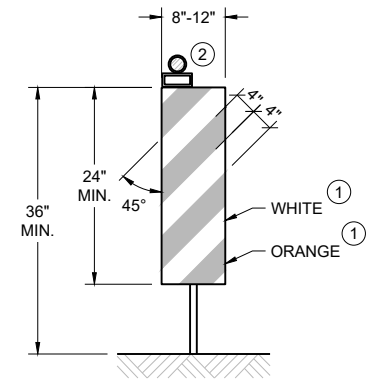
**DRUM**

BALLAST WIDTHS
RANGE FROM 24"-36"

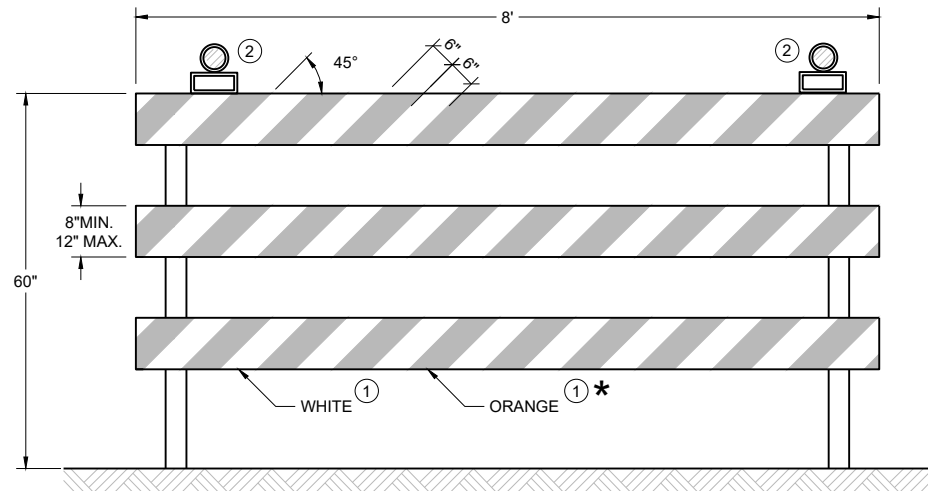
**42" CONE**

DO NOT USE IN TAPERS
 $\frac{1}{2}$ SPACING OF DRUMS

BALLAST WIDTHS
RANGE FROM 14"-20"

**VERTICAL PANEL**

THE STRIPES SHALL SLOPE DOWNWARD TO
THE TRAFFIC SIDE FOR CHANNELIZATION.

**TYPE III BARRICADE**

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

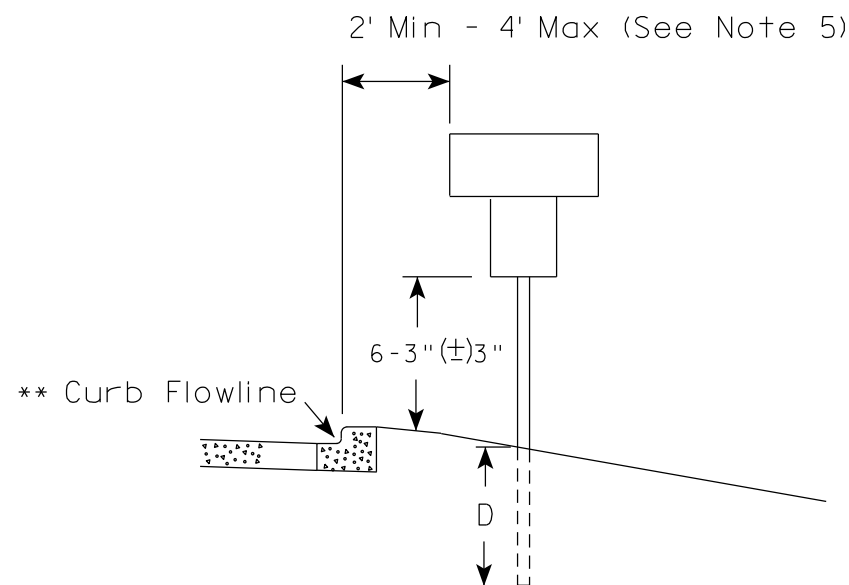
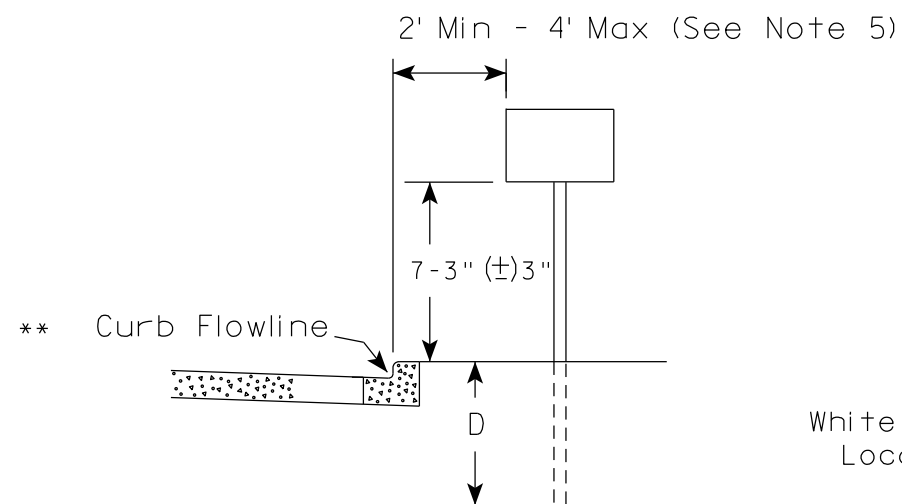
- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

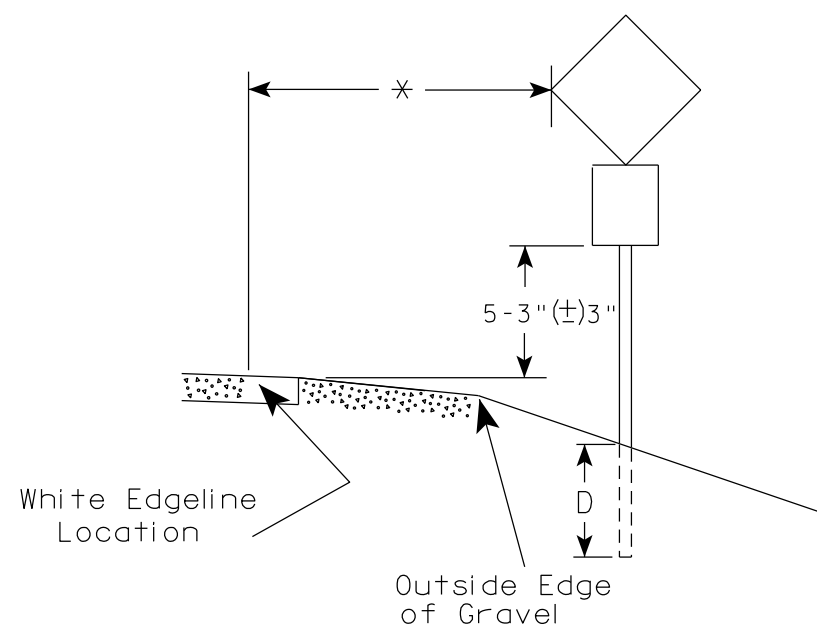
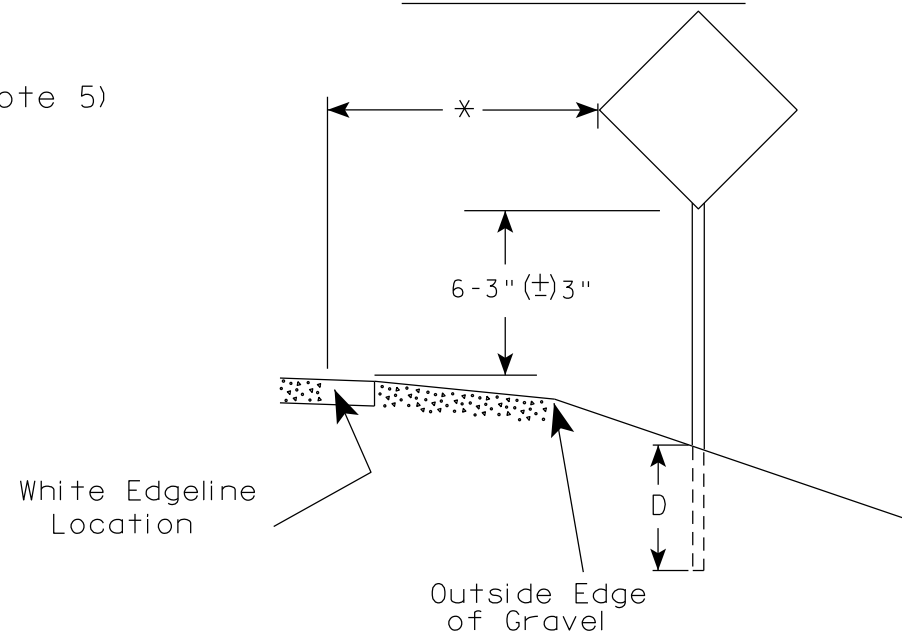
APPROVED
February 2026 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA

URBAN AREA



* * The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

RURAL AREA (See Note 2)



* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±) 3".
3. For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the Engineer.

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 12/6/23

PLATE NO. A4-3.23

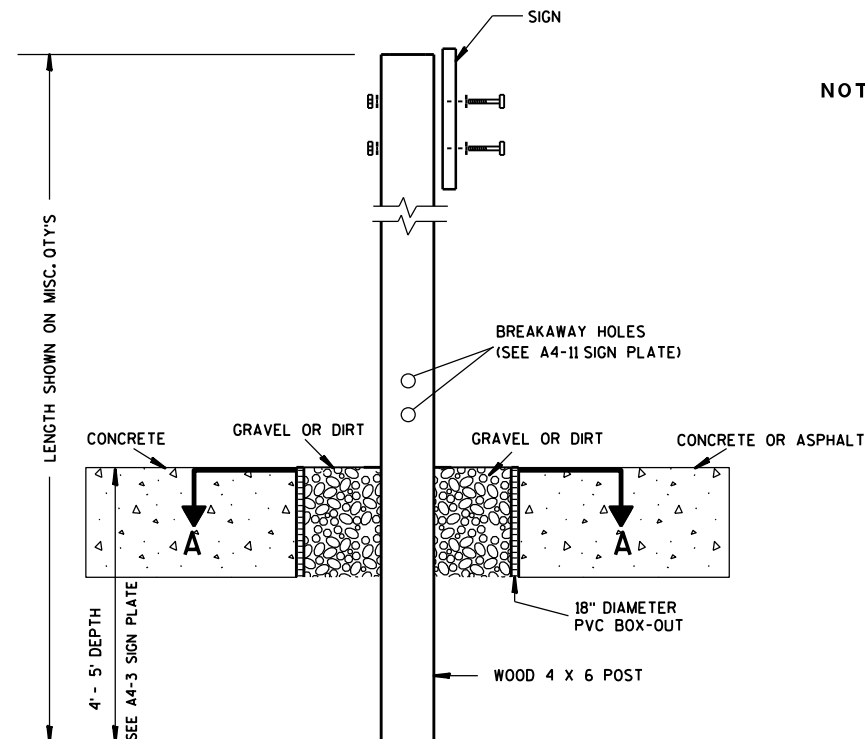
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 41

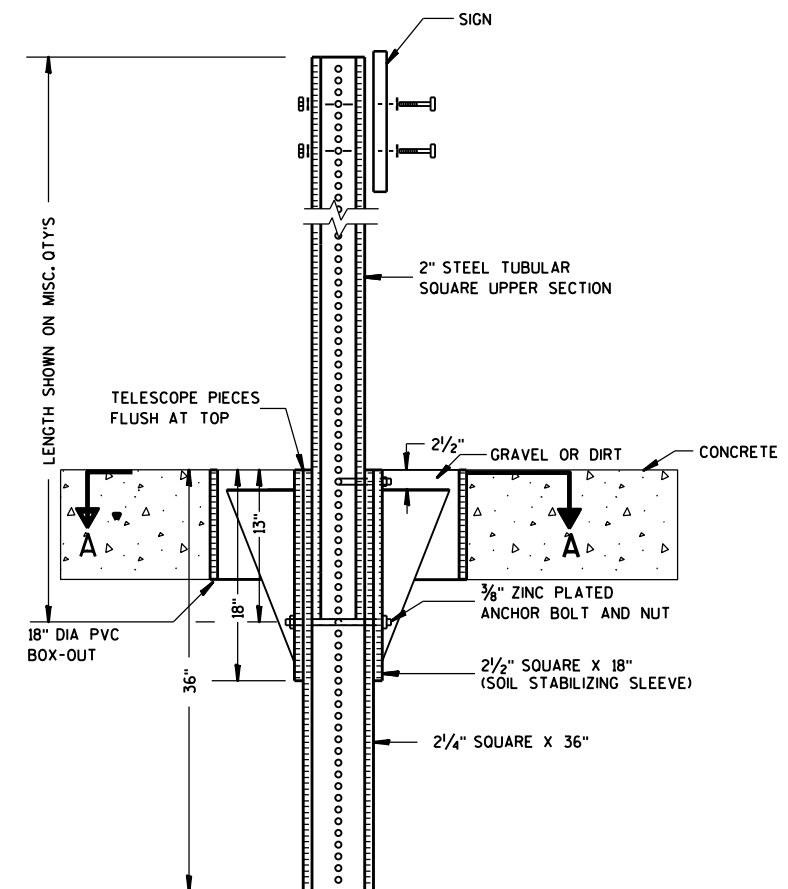
E



ELEVATION VIEW

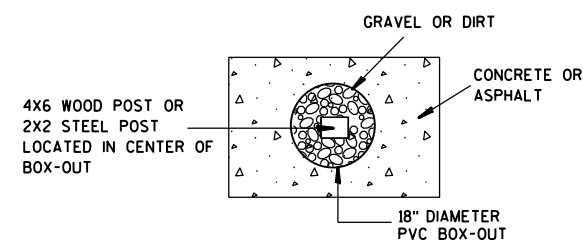
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 42 A4-3B.1

PROJECT NO:

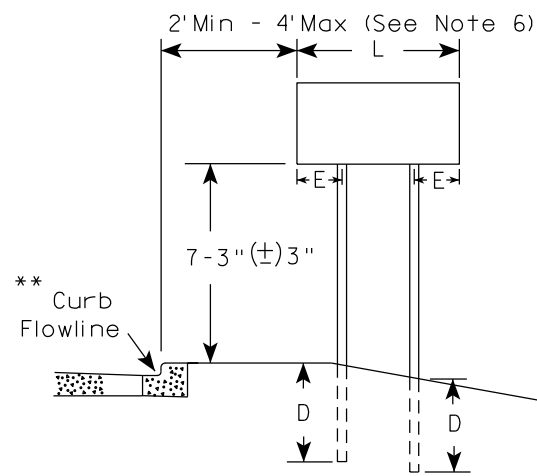
HWY:

COUNTY:

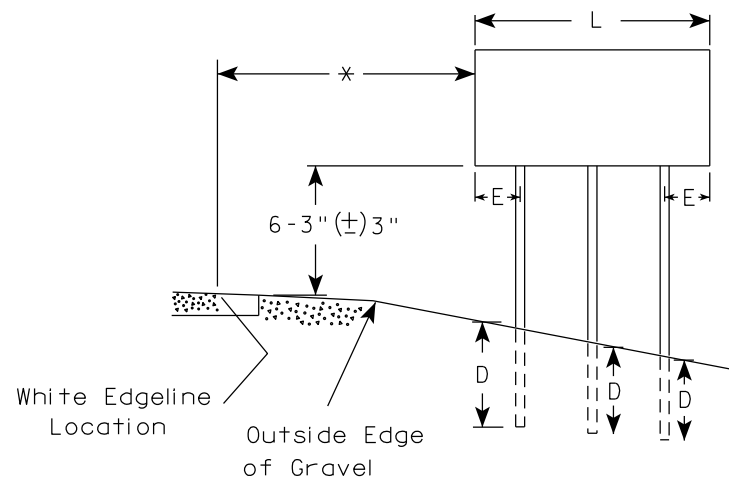
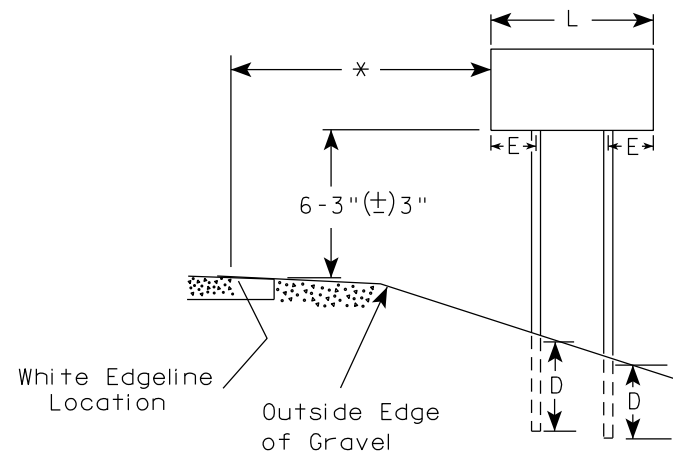
SHEET NO:

E

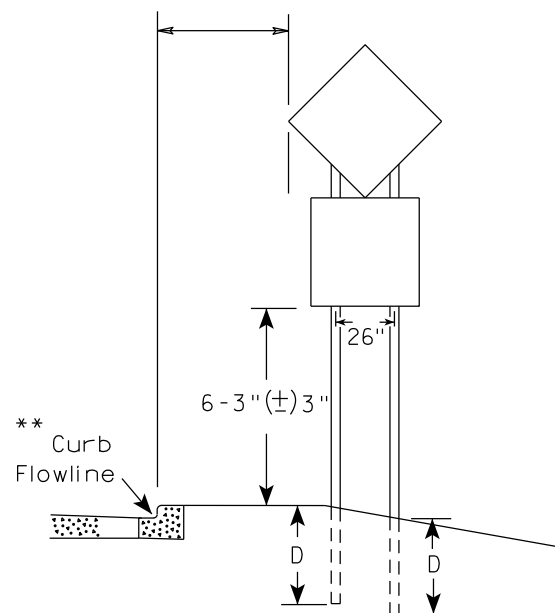
URBAN AREA



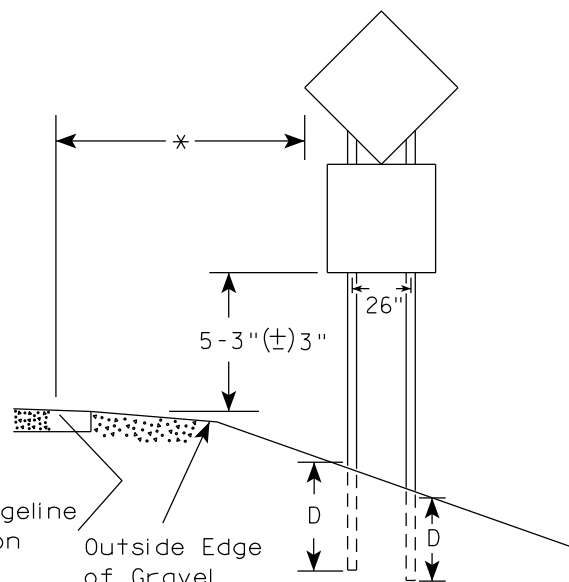
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±) 3".

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

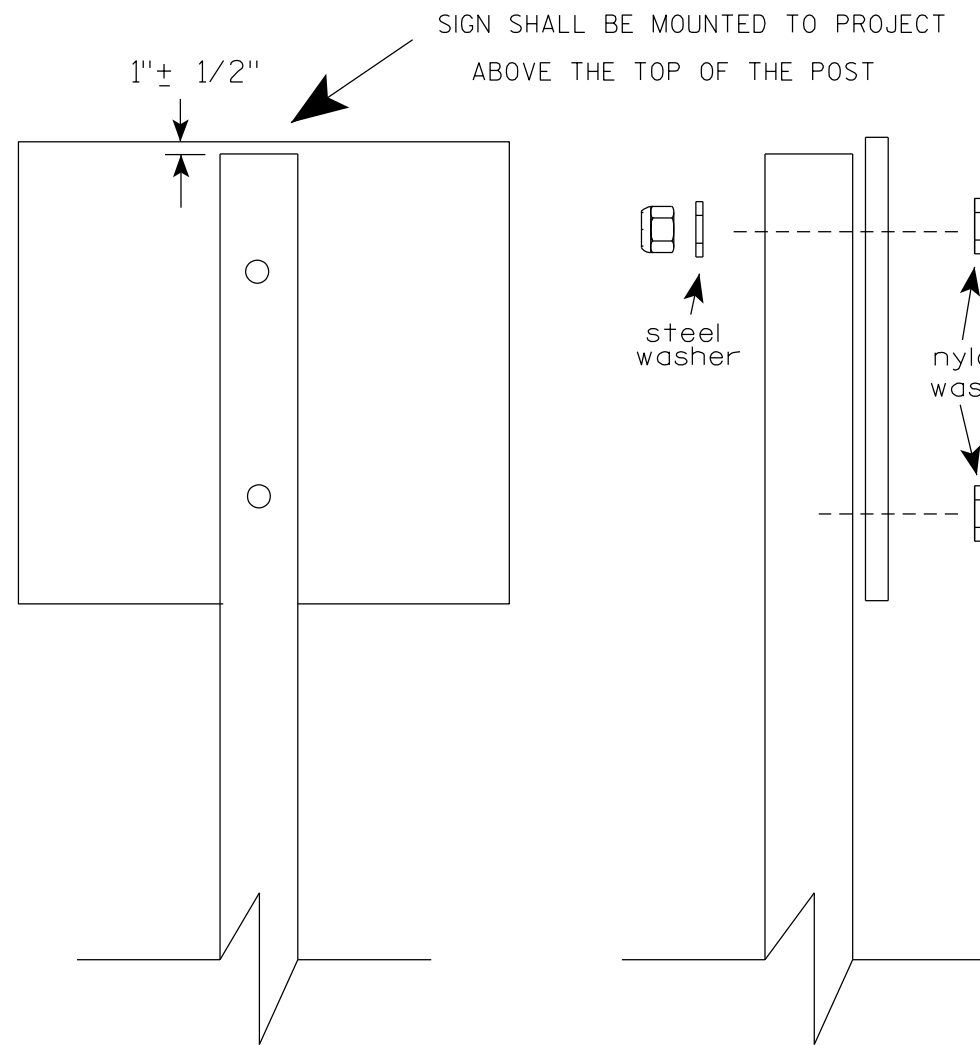
*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

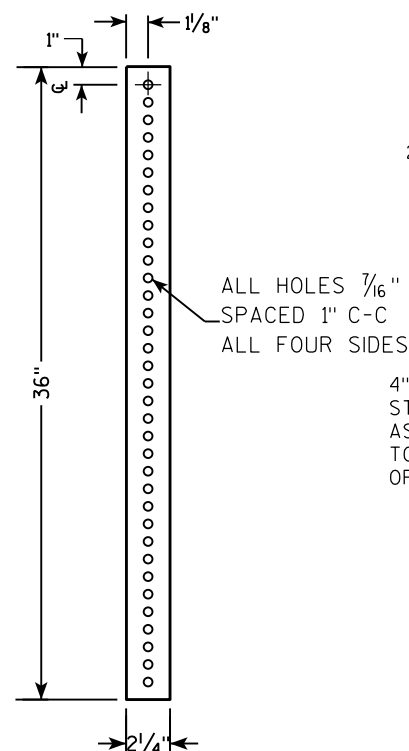
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

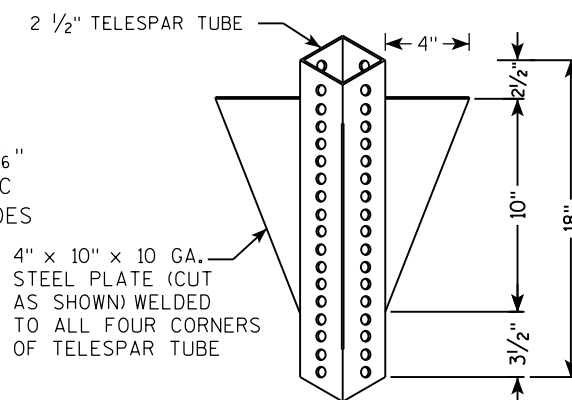
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH**



**2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH**

[illegible]

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY.

Side View Dimensions:

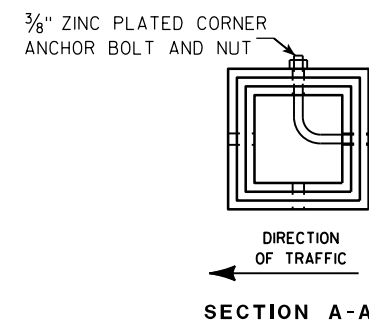
- Overall height: LENGTH SHOWN ON MISC. Q'TYS
- Section 1: 2" STEEL TUBULAR SQUARE UPPER SECTION
- Section 2: 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
- Section 3: 2 1/4" SQUARE X 36"
- Section 4: 36" (Total length of the lower square section)
- Section 5: 18"
- Section 6: 12"

Top View Details:

- TELESCOPE PIECES FLUSH AT TOP
- ALL HOLES 7/16" SPACED 1" C-C
- ALL FOUR SIDES
- 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT
- 1"
- 3/8" ZINC PLATED ANCHOR BOLT AND NUT

Sign Assembly Details:

- SIGN
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch

for State Traffic Engineer

DATE 2/05/15 PLATI 45 14-9.9

SHEET NO: E

PROJECT NO:

HWY:

COUNTY:

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A49.DGN

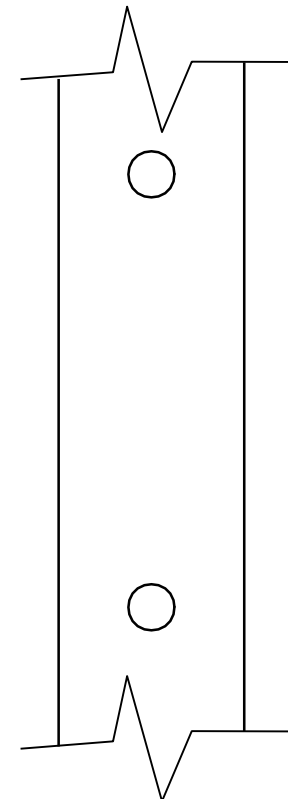
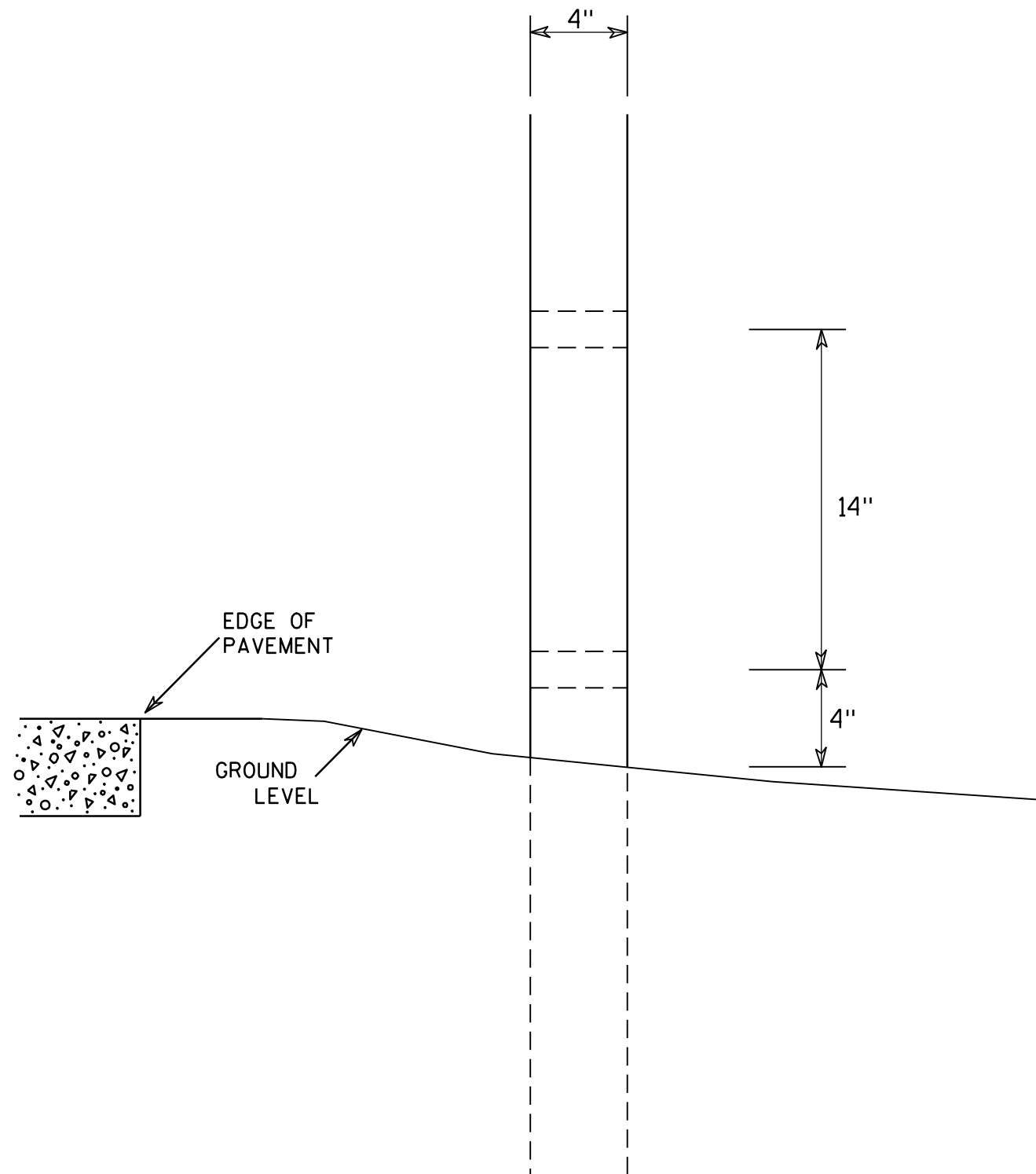
PLOT DATE : 05-FEB-2015 17:09

PLOT BY : mscs_ja

PLOT NAME :

PLOT SCALE : 13.659812:1.000000

WISDOT/CADDS SHEET 42



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1 1/2" diameter holes drilled perpendicular to the roadway centerline.

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

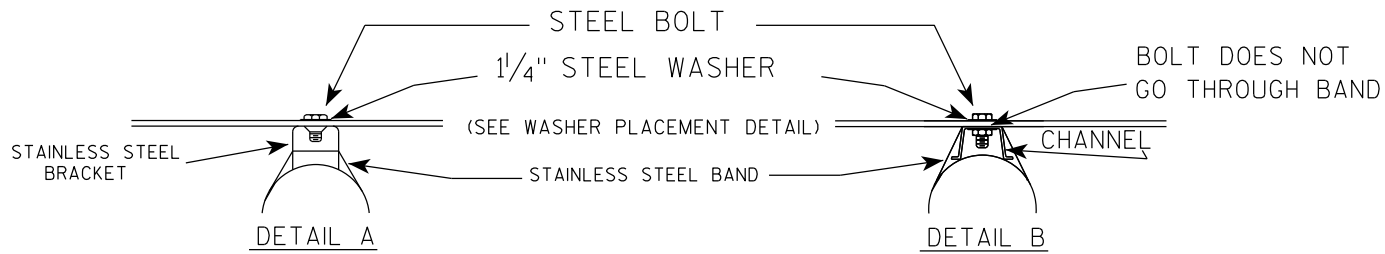
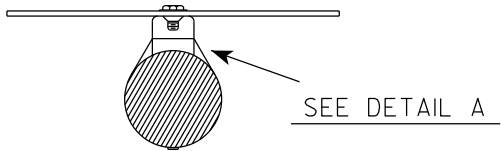
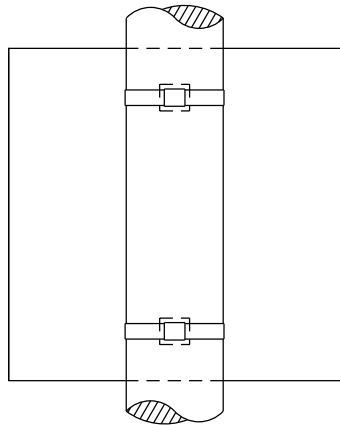
COUNTY:

SHEET NO: 46

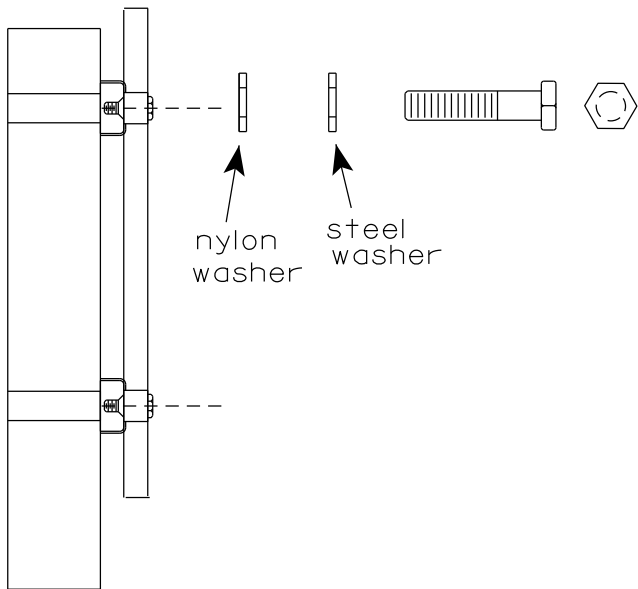
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

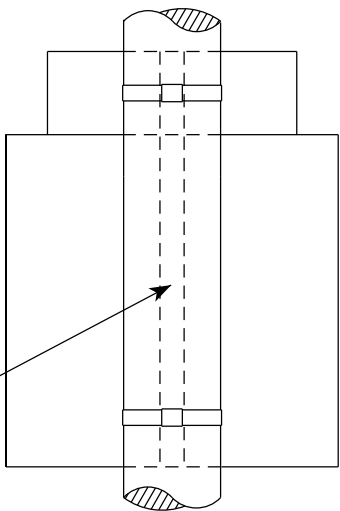


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

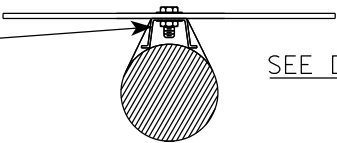
GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



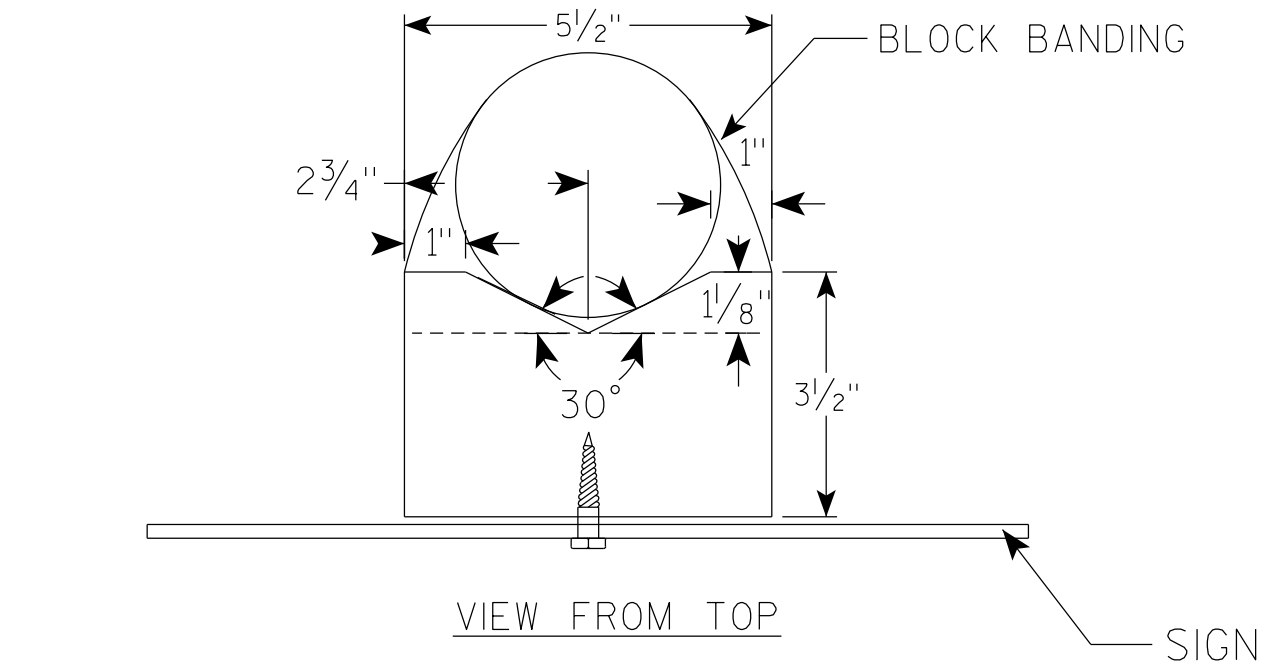
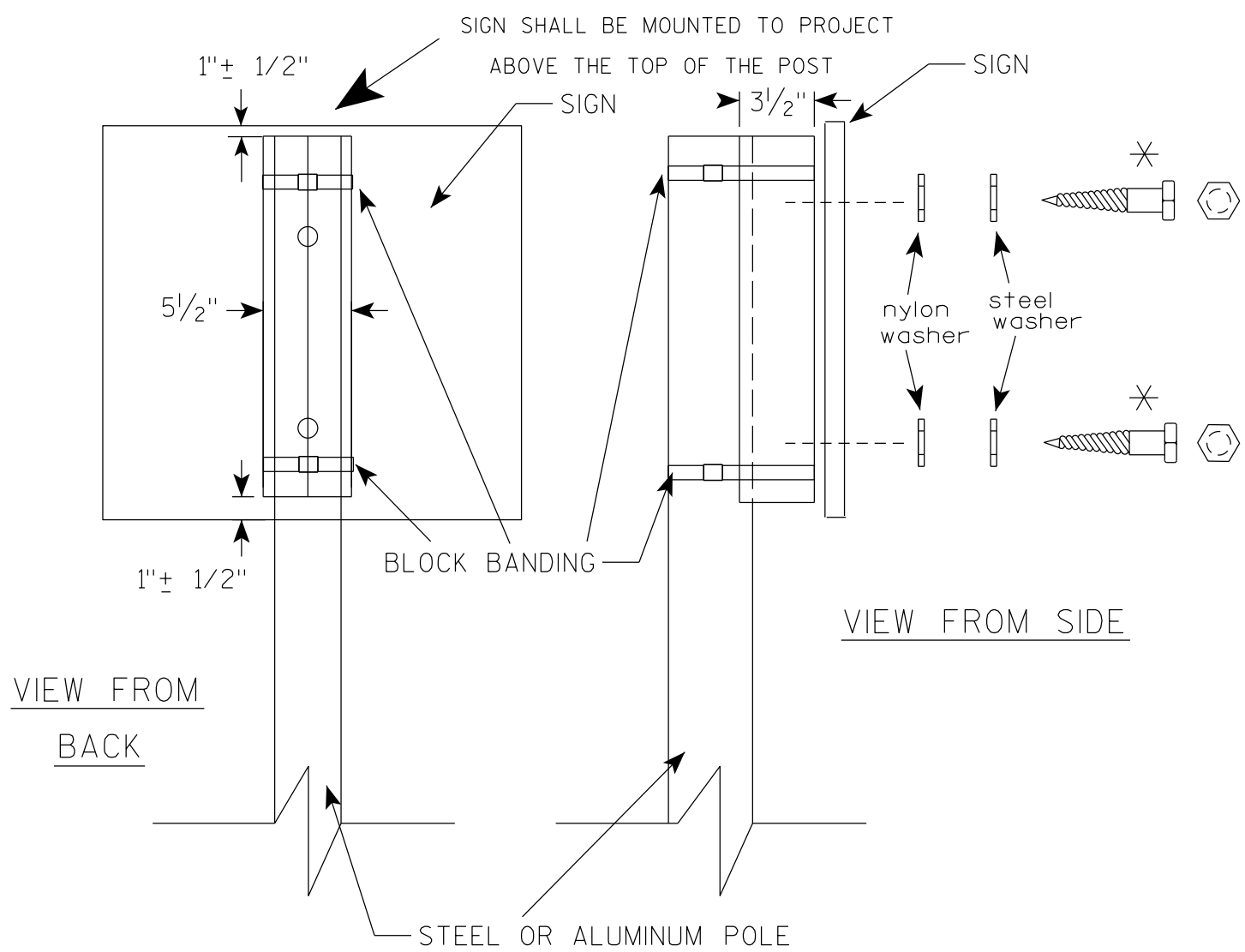
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 6/10/19 PLATE NO. A5-9.4



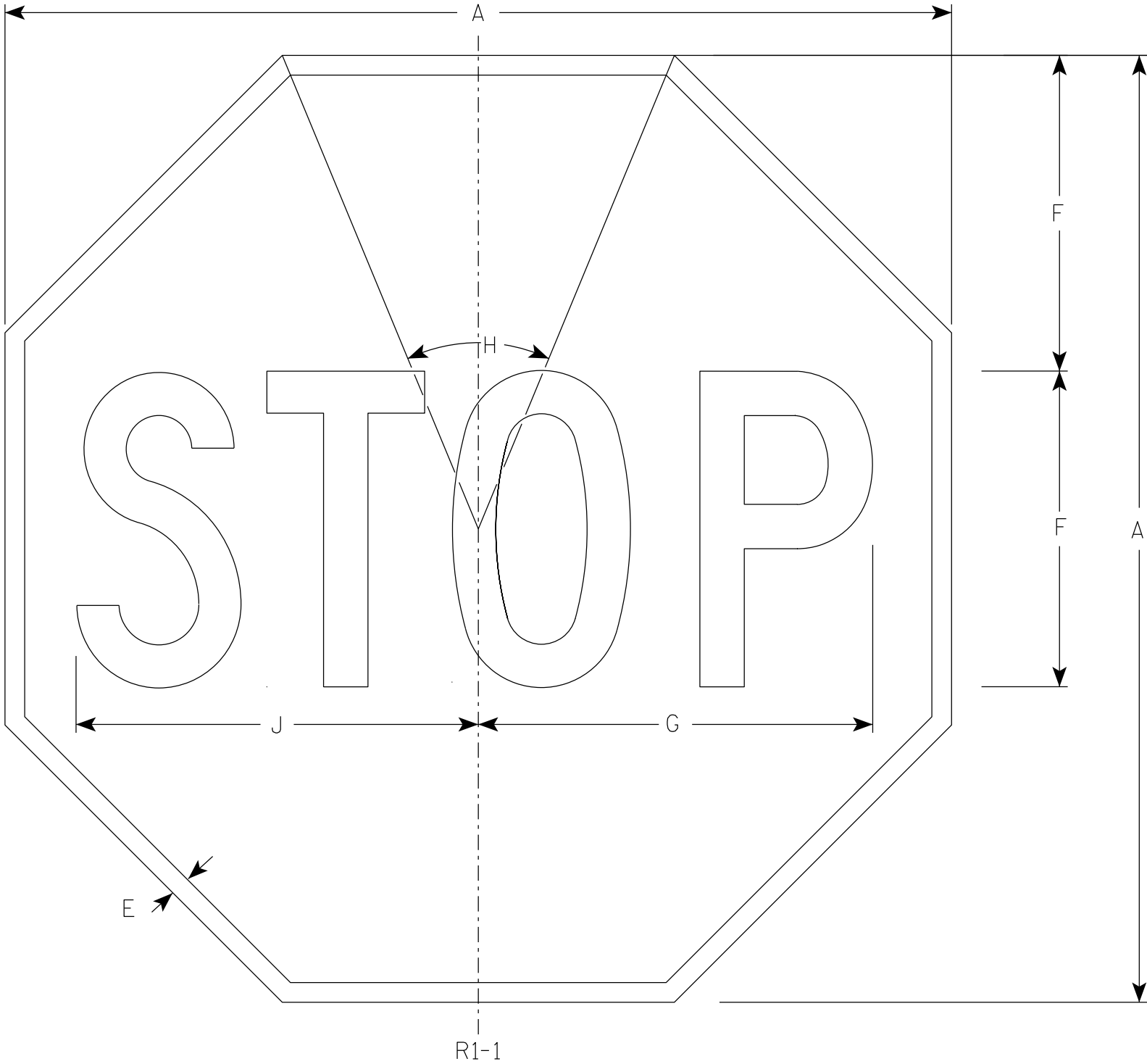
GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL (V-BLOCK OPTION)	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 4/19/2022	PLATE NO. A5-10.3

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - Red
Message - White
- 3. Message Series - C

7

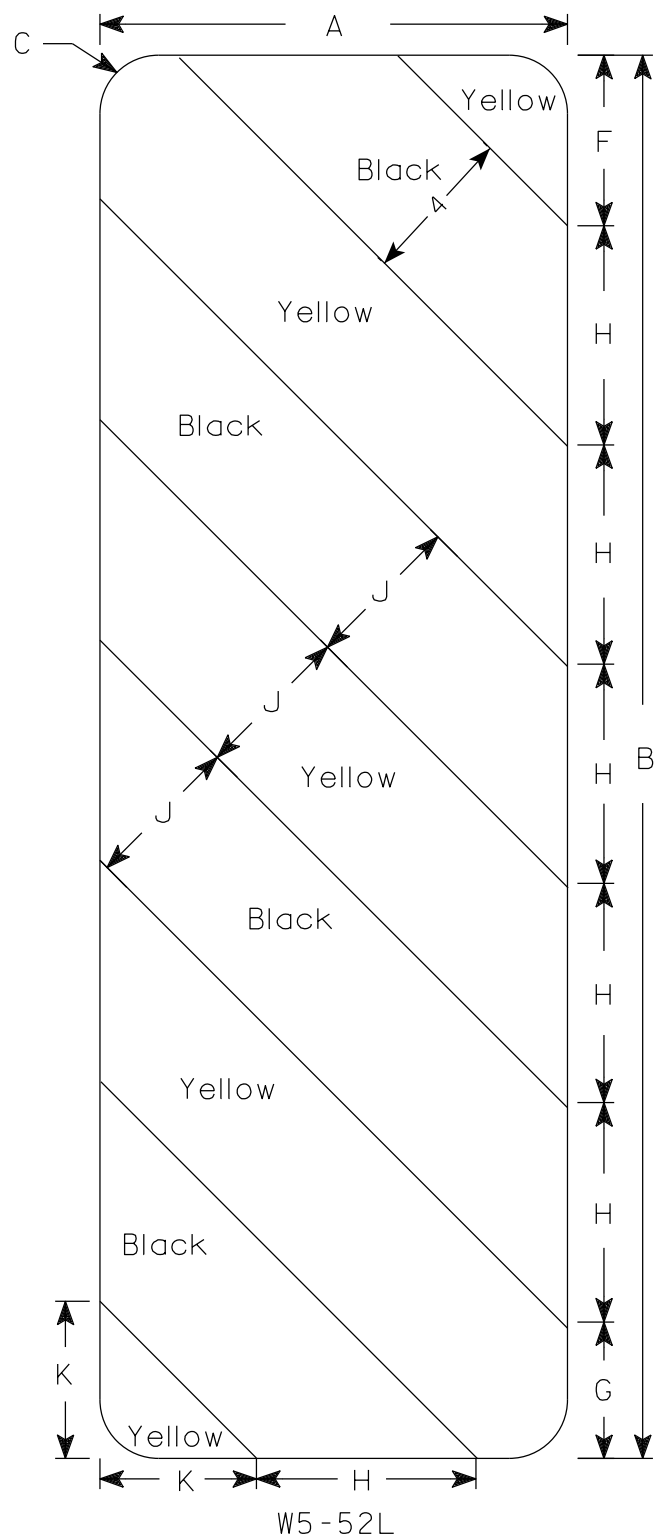
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86

STANDARD SIGN
R1-1

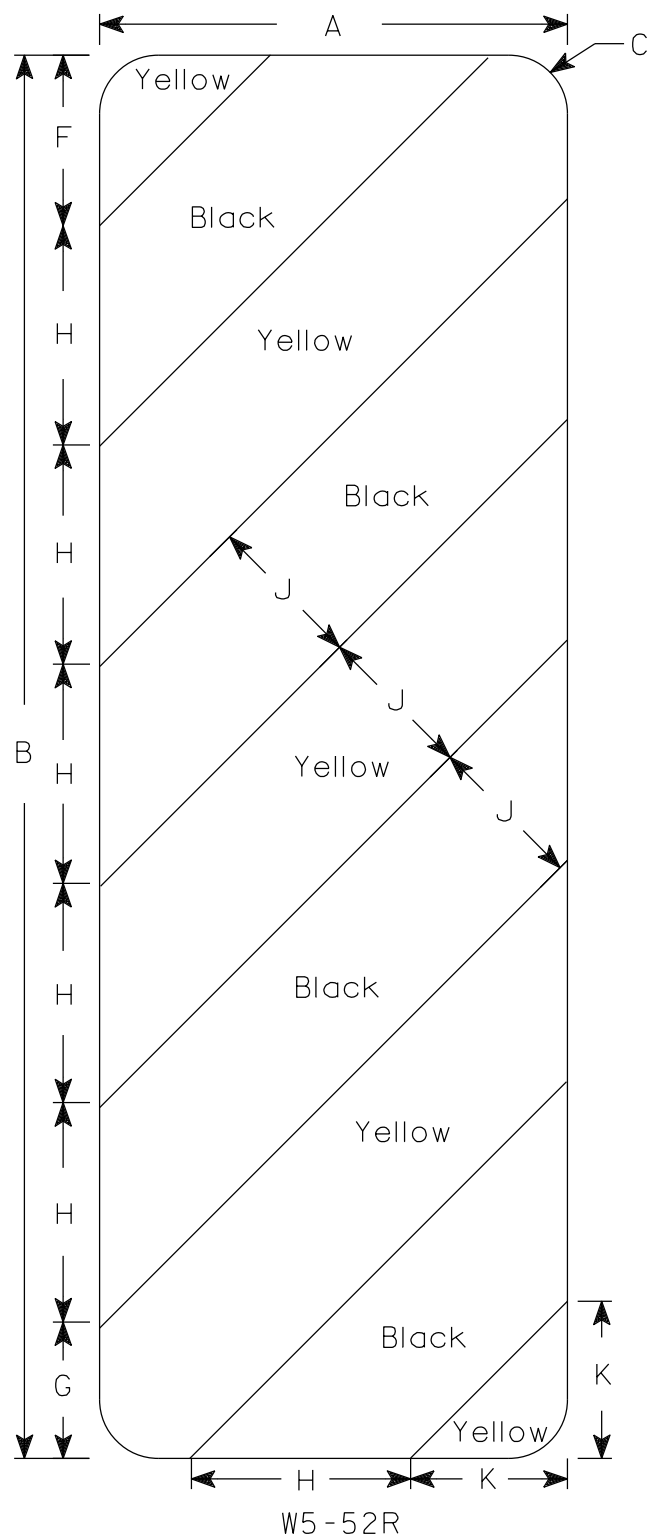
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/9/2025 PLATE NO. R1-1.14



W5-52L



W5-52R

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Yellow
 - Message - Black
- 3. Alternate colors of stripes as shown.

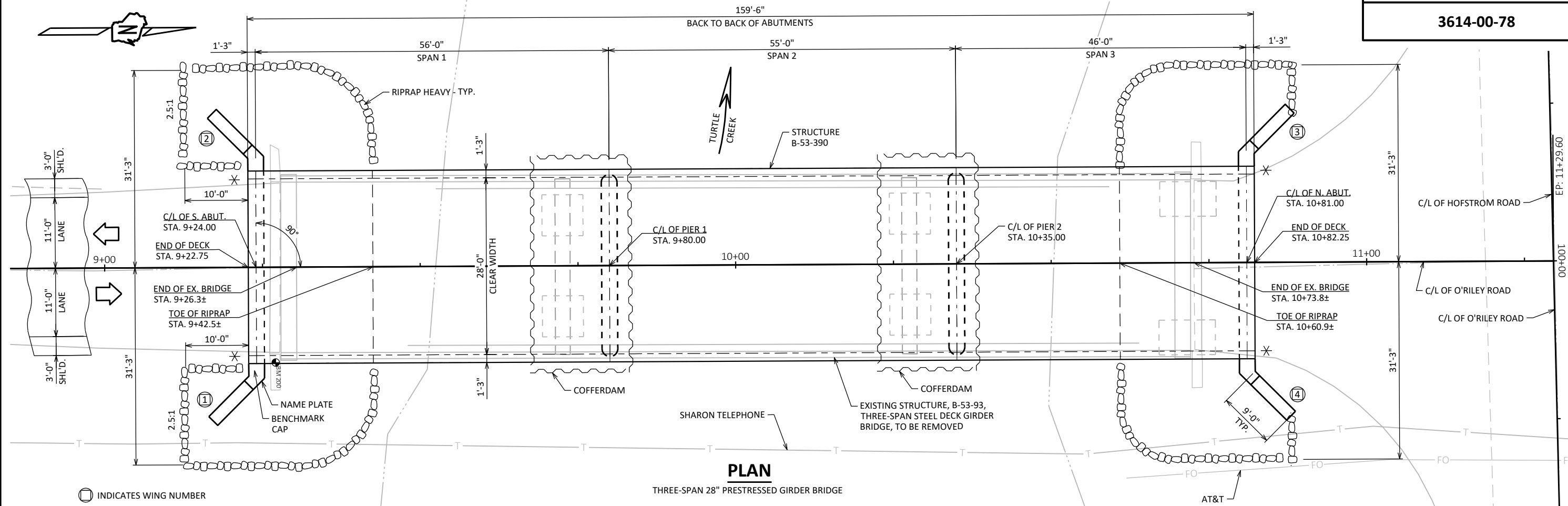
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

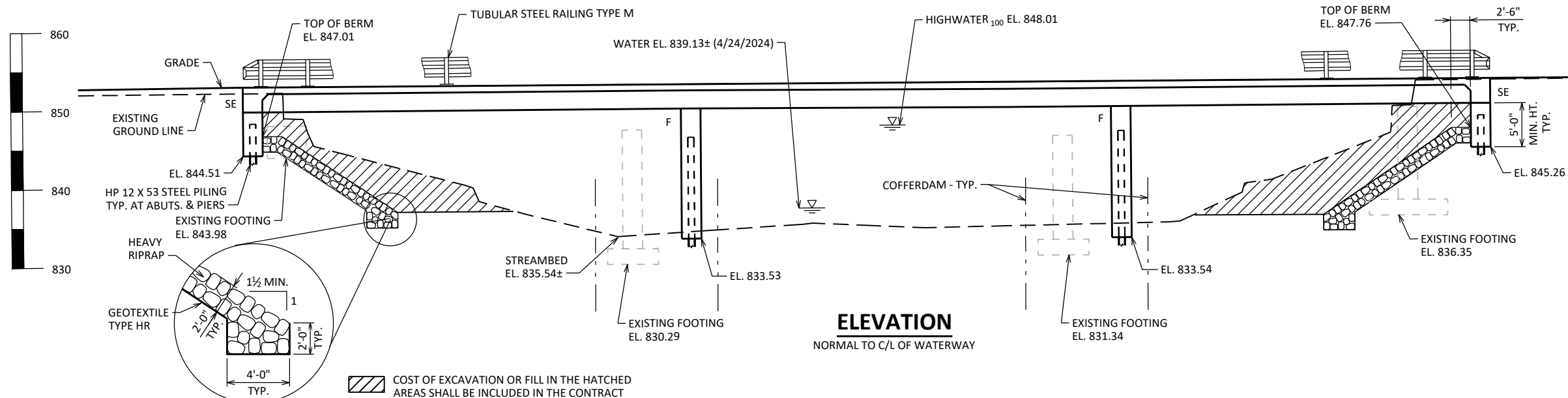
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/4/2024 PLATE NO. W5-52.10



PLAN

THREE-SPAN 28" PRESTRESSED GIRDER BRIDGE



ELEVATION

NORMAL TO C/L OF WATERWAY

LIST OF DRAWINGS:

1. GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES AND NOTES
3. STRUCTURE DETAILS
4. SUBSURFACE EXPLORATION
5. SOUTH ABUTMENT
6. SOUTH ABUTMENT WINGS 1 AND 2 DETAILS
7. SOUTH ABUTMENT BILL OF BARS
8. NORTH ABUTMENT
9. NORTH ABUTMENT WINGS 3 & 4 DETAILS
10. NORTH ABUTMENT BILL OF BARS
11. PIER 1
12. PIER 2
13. STEEL DIAPHRAGM
14. 28" PRESTRESSED GIRDER DETAILS
15. SUPERSTRUCTURE
16. SUPERSTRUCTURE PLAN
17. SUPERSTRUCTURE DETAILS
18. TUBULAR STEEL RAILING TYPE M

STRUCTURE DESIGN CONTACTS:

AARON BONK 608-261-0261
ARLEN BEAUDETTE 715-834-3161



08/13/2026

NO.		DATE		REVISION	
				BY	
ORIGINAL PLANS PREPARED BY					
AYRES		3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION					
ACCEPTED				J.L.R.	
		CHIEF STRUCTURES DESIGN ENGINEER		08/17/26 DATE	
STRUCTURE B-53-390					
O'RILEY ROAD OVER TURTLE CREEK					
COUNTY		ROCK		TOWN	
				BRADFORD	
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATION					
DESIGNED BY		DESIGN CK'D		DRAWN BY	
LMP		ZSS		CLP	
				PLANS CK'D	
				AEB	
GENERAL PLAN				SHEET 1 OF 18 51	

I.D.

DATE:

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING: RF = 1.05
OPERATING RATING: RF = 1.43
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE $f'_c = 4,000$ PSI
ALL OTHER $f'_c = 3,500$ PSI

BAR STEEL REINFORCEMENT
GRADE 60 $f_y = 60,000$ PSI

28" PRESTRESSED GIRDERS:
CONCRETE MASONRY $f'_c = 8,000$ PSI
STRANDS: 0.5" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.

FOUNDATION DATA

SOUTH ABUTMENT TO BE SUPPORTED ON 12 x 53 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. PRE-BORE 33'-0". ESTIMATED 36'-0" LONG.

NORTH ABUTMENT TO BE SUPPORTED ON 12 x 53 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 120 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. PRE-BORE 27'-0". ESTIMATED 30'-0" LONG.

PIER 1 TO BE SUPPORTED ON 12 x 53 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 160 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. PRE-BORE 29'-0". ESTIMATED 43'-0" LONG.

PIER 2 TO BE SUPPORTED ON 12 x 53 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 160 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. PRE-BORE 29'-0". ESTIMATED 43'-0" LONG.

**THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE PILE CAPACITY.

HYDRAULIC DATA

100-YEAR FREQUENCY:

$Q_{100} = 12,036$ C.F.S.
 $V_{100} = 8.4$ F.P.S.
 $HW_{100} = \text{EL. } 848.01$
WATERWAY AREA = 1,484 SQ. FT.
DRAINAGE AREA = 184 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 5

2-YEAR FREQUENCY:

$Q_2 = 2,400$ C.F.S.
 $V_2 = 2.8$ F.P.S.
 $HW_2 = \text{EL. } 844.09$

TRAFFIC DATA

FEATURE ON: O'RILEY ROAD

ADT = 310 (2026)
ADT = 330 (2046)
R.D.S. = 40 MPH

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE $\frac{3}{4}$ " UNLESS OTHERWISE NOTED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES B-53-390" SHALL BE THE EXISTING GROUNDLINE.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

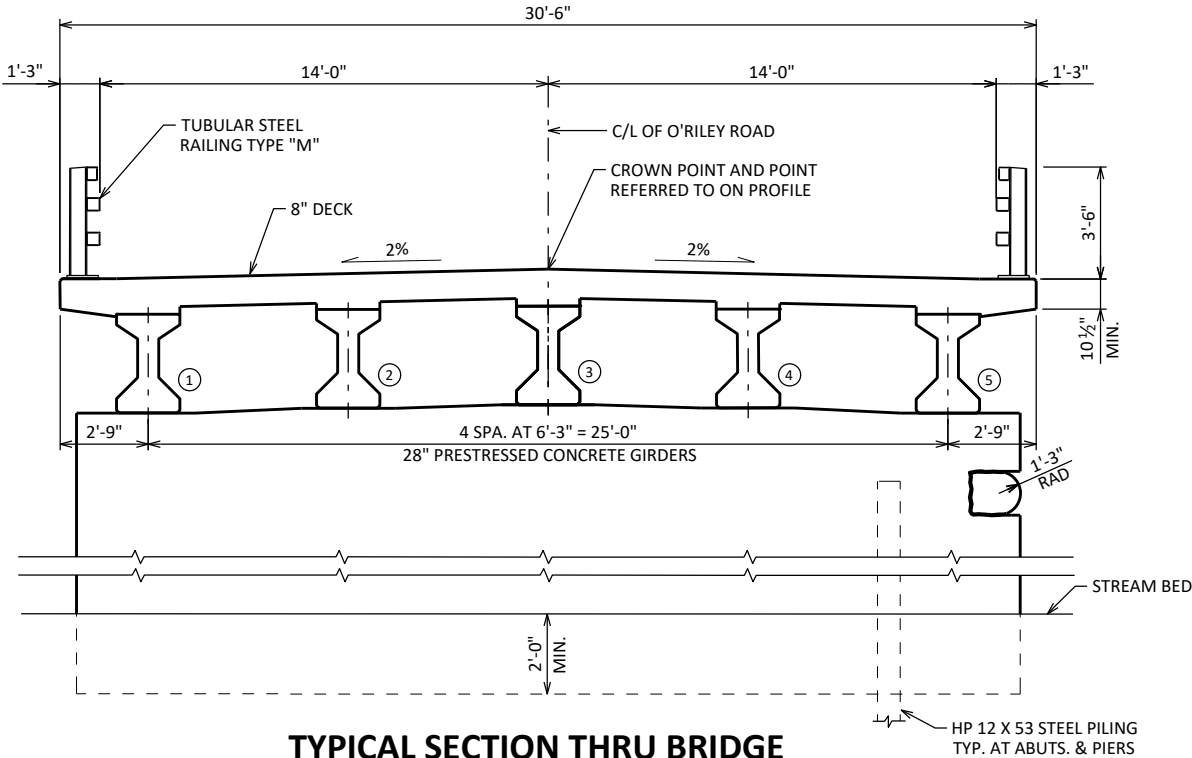
PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK, EXTERIOR EXPOSED FACE OF WINGS, AND FRONT FACE OF ABUTMENTS TO 1'-0" PAST THE EDGE OF DECK.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE "HR" TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE 28" PRESTRESSED GIRDER DETAILS SHEET.

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES

EXISTING SUBSTRUCTURE LOCATIONS ARE BASED ON SURVEY. EXTENT OF BELOW GRADE SUBSTRUCTURES ARE NOT KNOWN. REMOVE EXISTING SUBSTRUCTURES AS NEEDED TO BUILD NEW SUBSTRUCTURES. COST OF SUBSTRUCTURE REMOVAL IS CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS" BID ITEM.

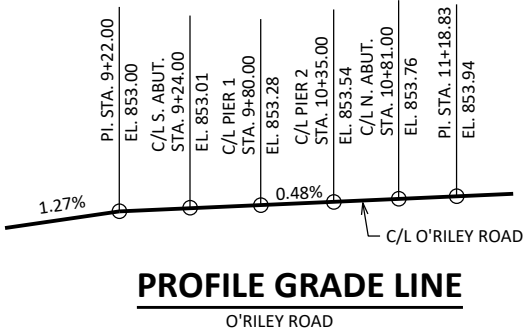


TYPICAL SECTION THRU BRIDGE

LOOKING NORTH

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER	S. ABUT.	PIER 1	PIER 2	N. ABUT.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS (B-53-93)	EACH	---	---	---	---	---	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-53-390	EACH	---	---	---	---	---	1
206.5001	COFFERDAMS B-53-390	EACH	---	---	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	---	180	---	---	180	360
502.0100	CONCRETE MASONRY BRIDGES	CY	155.1	29.8	43.8	44.4	29.8	303
502.3200	PROTECTIVE SURFACE TREATMENT	SY	605	17	---	---	17	639
502.9000.S	UNDERWATER SUBSTRUCTURE INSPECTION B-53-390	EACH	---	---	1	1	---	2
503.0128	PRESTRESSED GIRDER TYPE I 28-INCH	LF	788	---	---	---	---	788
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	---	2,400	2,070	2,090	2,400	8,960
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	30,980	1,390	40	40	1,390	33,840
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	---	5	10	10	5	30
506.4000	STEEL DIAPHRAGMS B-53-390	EACH	12	---	---	---	---	12
513.4061	RAILING TUBULAR TYPE M	LF	324	---	---	---	---	324
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	---	7	---	---	7	14
550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	---	231	232	232	189	884
550.1120	PILING STEEL HP 12-INCH X 53 LB	LF	---	252	344	344	210	1,150
606.0300	RIPRAP HEAVY	CY	---	125	---	---	135	260
612.0406	PIPE UNDERDRAIN WRAPPED 6 - INCH	LF	---	80	---	---	80	160
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	---	50	---	---	50	100
645.0120	GEOTEXTILE TYPE HR	SY	---	230	---	---	240	470
	NON-BID ITEMS							
	FILLER	SIZE	---	---			---	1/2", 3/4"



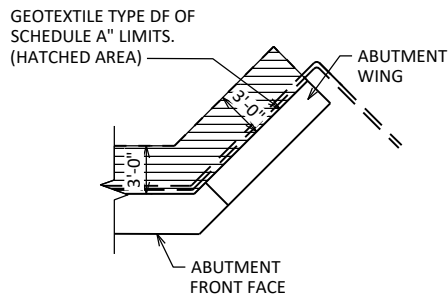
PROFILE GRADE LINE

O'RILEY ROAD

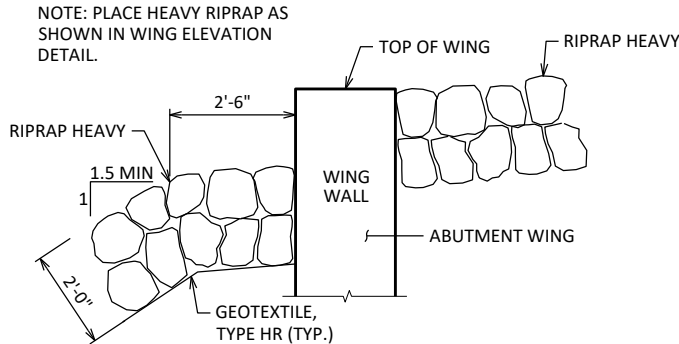
BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
200	9+27	BRIDGE CAP, 14.8' RT.	852.83
201	100+98	RR SPIKE, 27.7' LT.	851.39

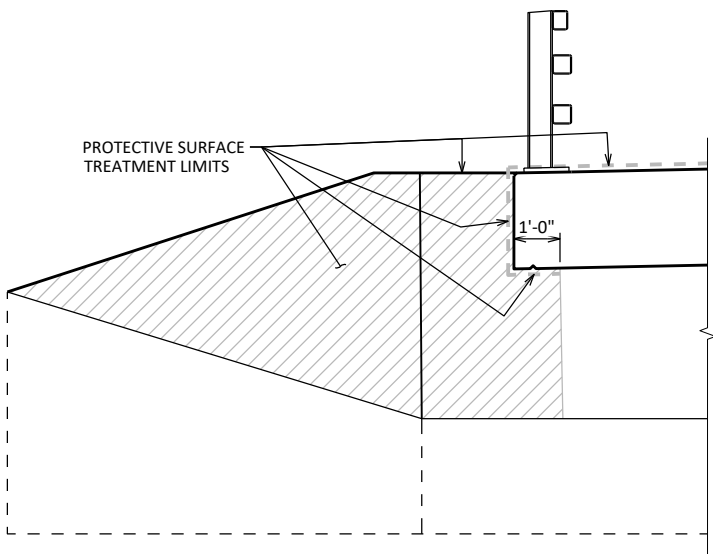
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-390			
		DRAWN BY	CLP
		PLANS CK'D	AEB
TYPICAL SECTION, QUANTITIES AND NOTES		SHEET 2 OF 18	
		52	



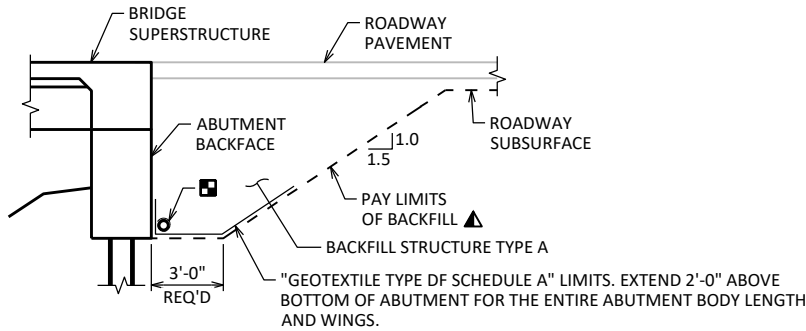
BACKFILL STRUCTURE LIMITS
ABUTMENT PLAN WITH WING



TYPICAL FILL SECTION AT WING

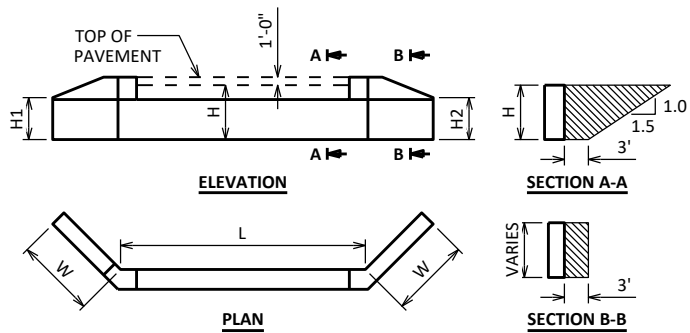


PROTECTIVE SURFACE TREATMENT DETAILS



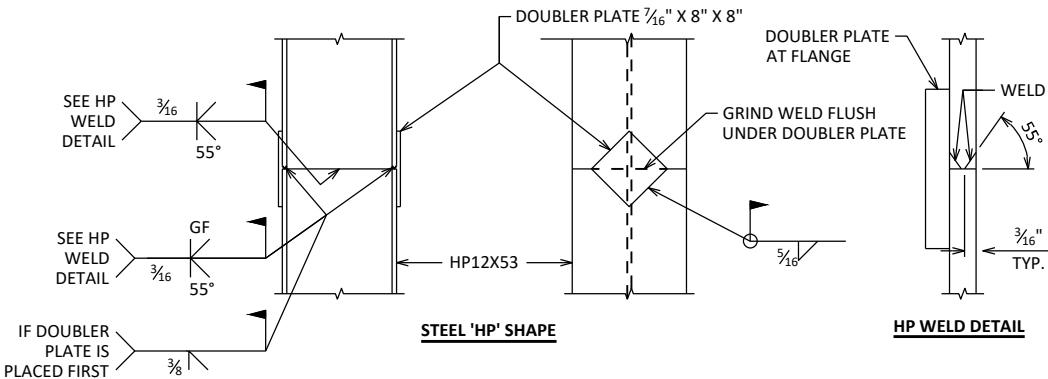
TYPICAL SECTION THRU ABUTMENT

- ▲ BACKFILL PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

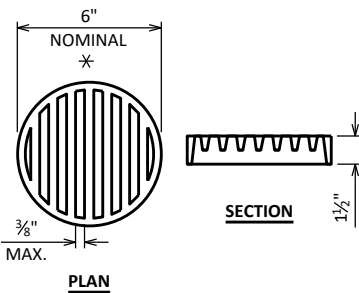


ABUTMENT BACKFILL DIAGRAM

- L = ABUTMENT BODY LENGTH AT BACKFACE (FT)
- H = AVERAGE ABUTMENT FILL HEIGHT (FT)
- H1 = WING 1 HEIGHT AT TIP (FT)
- H2 = WING 2 HEIGHT AT TIP (FT)
- W = WING LENGTH (FT)
- EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
- $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H) + (3')(0.5)(H1+H2+H+H)(W)$
- $V_{CY} = V_{CF}(EF)/27$
- $V_{TON} = V_{CY}(2.0)$



'HP' PILE DETAILS



RODENT SHIELD DETAIL

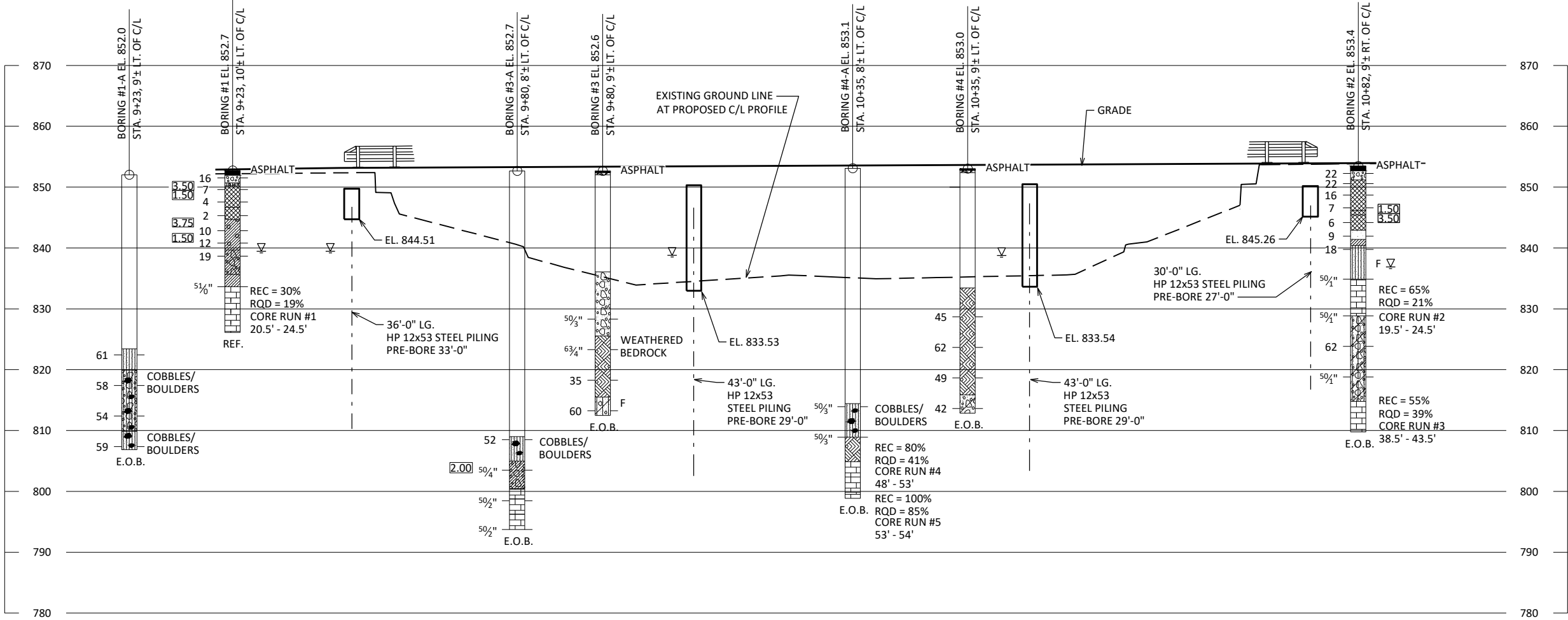
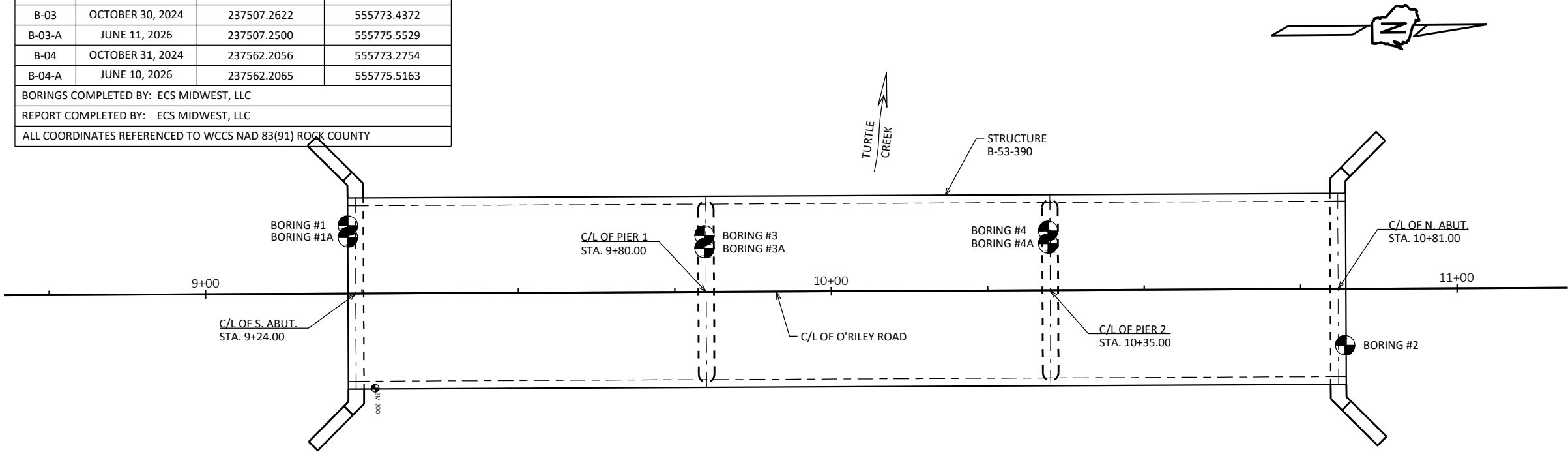
- * DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-390			
DRAWN BY		CLP	PLANS CK'D AEB
STRUCTURE DETAILS		SHEET 3 OF 18 53	

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-01	OCTOBER 29, 2024	237450.2659	555771.3079
B-01-A	JUNE 9, 2026	237450.2562	555773.0096
B-02	OCTOBER 30, 2024	237609.4905	555792.0241
B-03	OCTOBER 30, 2024	237507.2622	555773.4372
B-03-A	JUNE 11, 2026	237507.2500	555775.5529
B-04	OCTOBER 31, 2024	237562.2056	555773.2754
B-04-A	JUNE 10, 2026	237562.2065	555775.5163
BORINGS COMPLETED BY: ECS MIDWEST, LLC			
REPORT COMPLETED BY: ECS MIDWEST, LLC			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) ROCK COUNTY			



STATE PROJECT NUMBER

3614-00-78

MATERIAL SYMBOLS

ASPHALT

CONCRETE

SAND

BOULDERS OR COBBLES

SHALE

TOPSOIL

FILL

CLAY

LIMESTONE

SANDSTONE

PEAT

GRAVEL

SILT

BEDROCK (UNKNOWN)

IGNEOUS/META

LEGEND OF BORING

BORING #/EL. STA./OFFSET

ST

0.25

17

F-C

COBBLE OR BOULDER

WEATHERED LIMESTONE

CORE RUN #1 - 24'-29'

REC=80%, RQD=72%

UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

AT TIME OF DRILLING

END OF DRILLING

AFTER DRILLING

ABBREVIATIONS

F-FINE

M-MEDIUM

C-COARSE

ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-53-390

DRAWN BY

CLP

PLANS CK'D

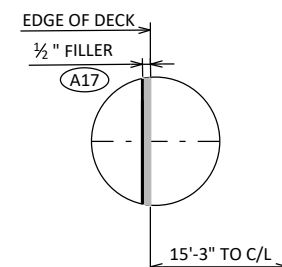
AEB

SUBSURFACE EXPLORATION

SHEET 4 OF 18
54

8

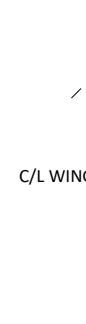
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DETAIL A



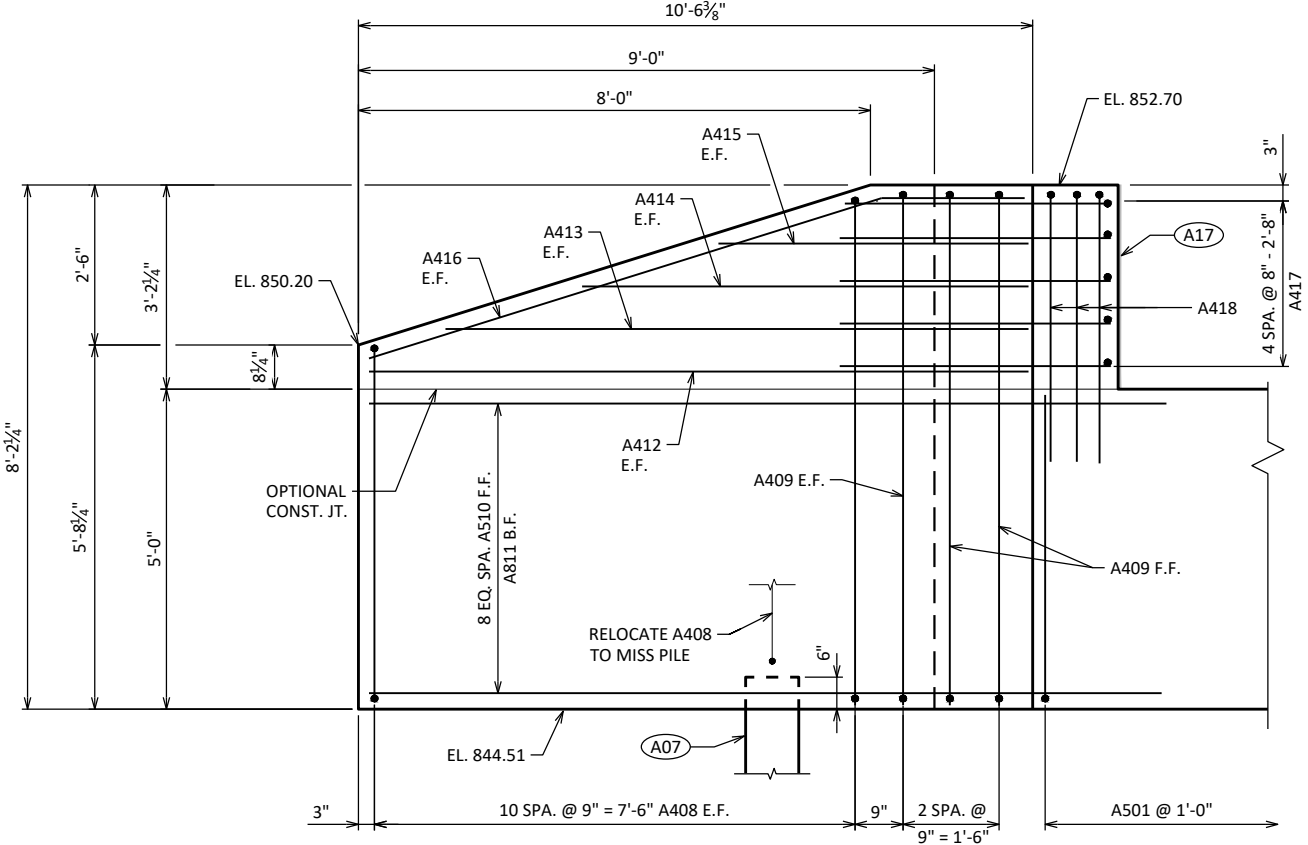
PLAN



PILE PLAN

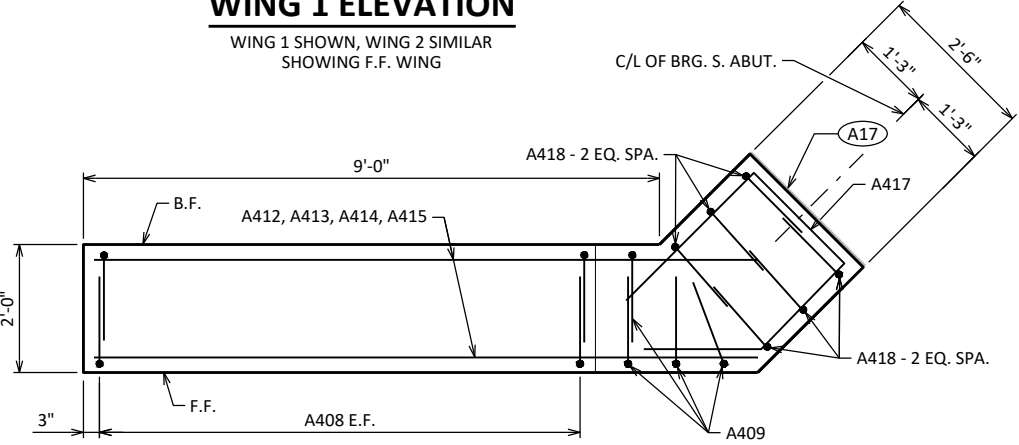
- DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.
- A07** SUPPORT ABUTMENT ON HP 12 x 53 STEEL PILING, ESTIMATED 36'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE. PRE-BORE 33'-0".
- A15** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17** 1½" FILLER: SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ½" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A18** ¾" CORK FILLER UP VERT. BEAM SEAT FACES THEN RUN PARALLEL WITH GIRDER.
- A19** 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- INDICATES GIRDER NUMBER.

NO.	DATE	REVISION	B
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-53-390	
DRAWN BY		CLP	PLANS CK'D AEB
SOUTH ABUTMENT		SHEET 5 OF 18 55	



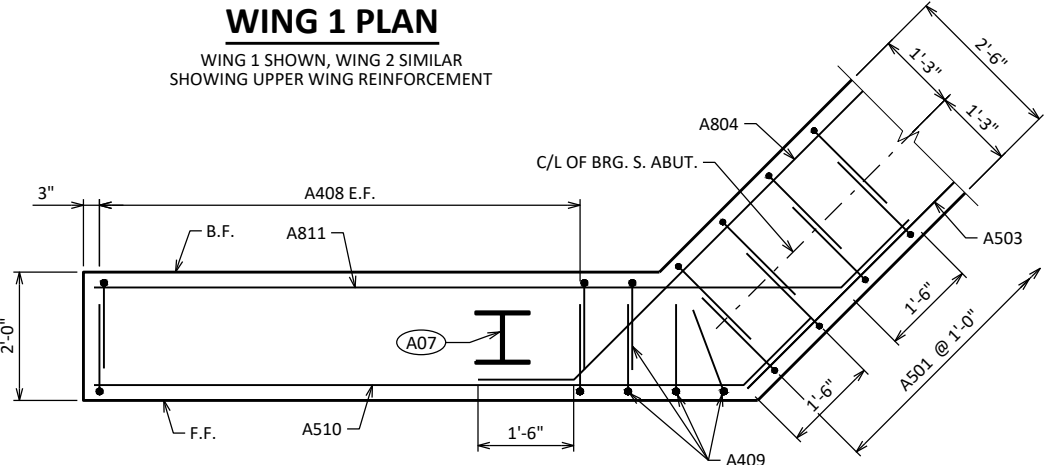
WING 1 ELEVATION

WING 1 SHOWN, WING 2 SIMILAR
SHOWING F.F. WING



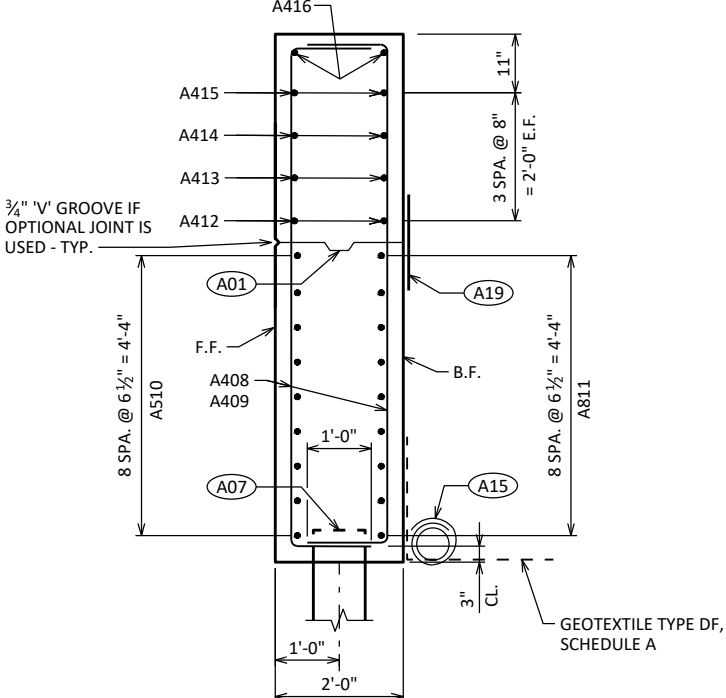
WING 1 PLAN

WING 1 SHOWN, WING 2 SIMILAR
SHOWING UPPER WING REINFORCEMENT



WING 1 PLAN

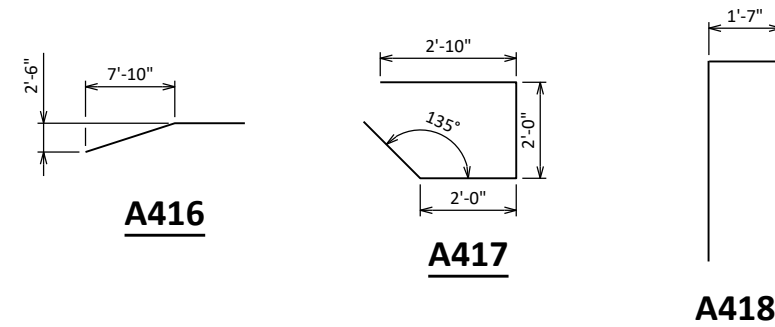
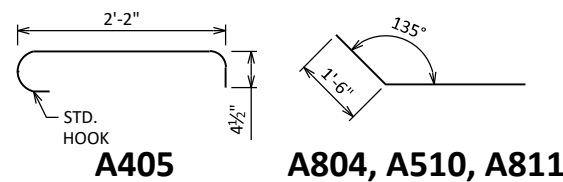
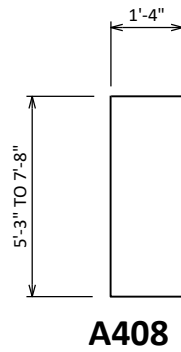
WING 1 SHOWN, WING 2 SIMILAR
SHOWING LOWER WING REINFORCEMENT



SECTION THRU WING 1

- (A01) OPTIONAL CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6. PROVIDE 3/4" "V" GROOVE ON F.F. OF WINGWALL IF JOINT IS USED.
- (A07) SUPPORT ABUTMENT ON HP 12 x 53 STEEL PILING, ESTIMATED 36'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE. PRE-BORE 33'-0".
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER: SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" RUBBERIZED MEMBRANE WATERPROOFING, ONLY IF OPTIONAL CONSTRUCTION JOINT IS USED. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY STRUCTURES".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-390			
DRAWN BY		CLP	PLANS CK'D AEB
SOUTH ABUTMENT WINGS 1 AND 2 DETAILS		SHEET 6 OF 18 56	



NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

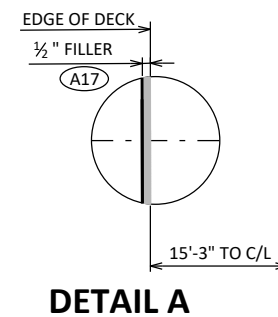
▲ LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D.	LENGTH
A408	4 SERIES OF 11	7'-9" TO 10'-2"

- (A07)** SUPPORT ABUTMENT ON HP 12 x 53 STEEL PILING, ESTIMATED 36'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE. PRE-BORE 33'-0".
- (A15)** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A19)** 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

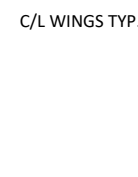
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-390			
		DRAWN BY	CLP
		PLANS CK'D	AEB
SOUTH ABUTMENT BILL OF BARS		SHEET 7 OF 18 57	



DETAIL A



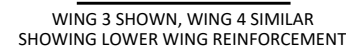
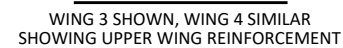
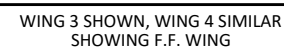
PLAN



PILE PLAN

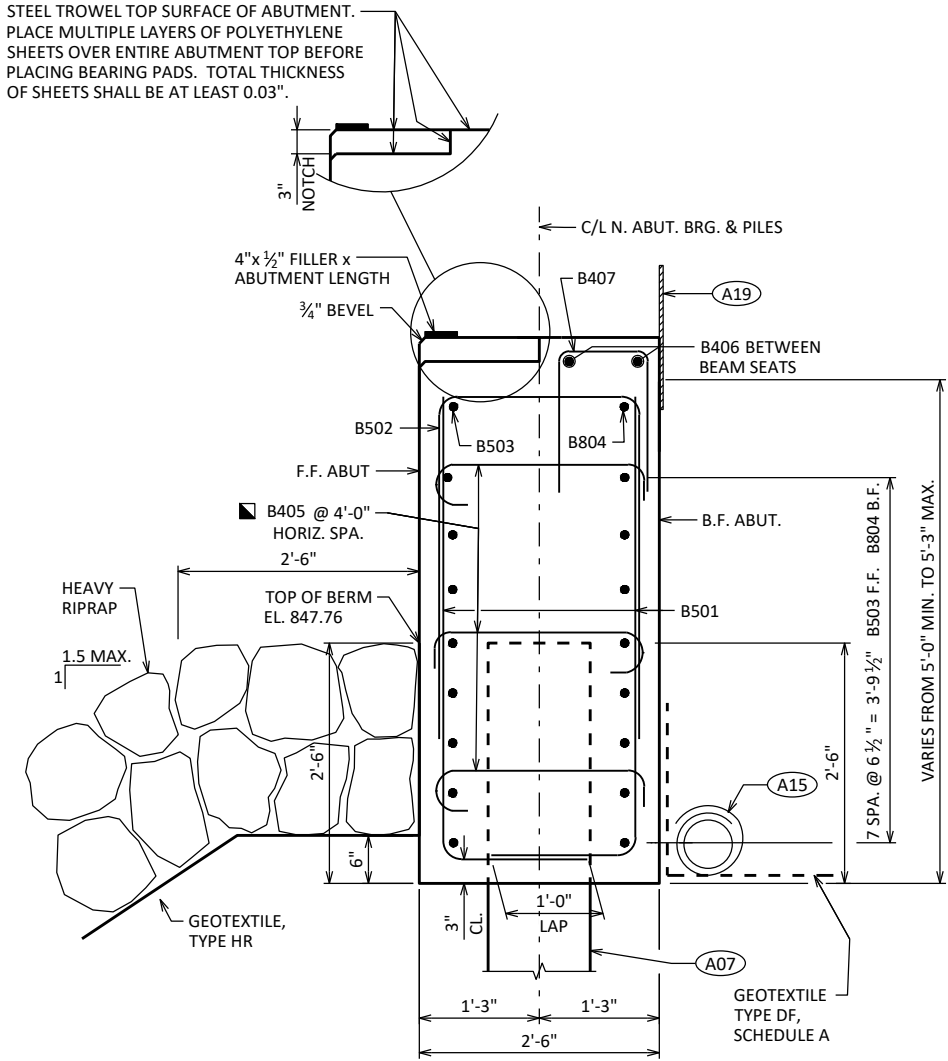
- DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.
- A07** SUPPORT ABUTMENT ON HP 12 x 53 STEEL PILING, ESTIMATED 30'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE. PRE-BORE 27'-0".
- A15** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17** ½" FILLER: SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A18** ¾" CORK FILLER UP VERT. BEAM SEAT FACES THEN RUN PARALLEL WITH GIRDER.
- A19** 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- INDICATES GIRDER NUMBER.

NO.	DATE	REVISION	B
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-53-390	
DRAWN BY		CLP	PLANS CK'D AEB
NORTH ABUTMENT		SHEET 8 OF 18 58	



- A01** OPTIONAL CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6. PROVIDE $\frac{3}{4}$ " "V" GROOVE ON F.F. OF WINGWALL IF JOINT IS USED.
- A07** SUPPORT ABUTMENT ON HP 12 x 53 STEEL PILING, ESTIMATED 30'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE. PRE-BORE 27'-0".
- A15** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17** $\frac{1}{2}$ " FILLER: SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF $\frac{3}{2}$ " FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD $\frac{3}{8}$ " BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19** 18" RUBBERIZED MEMBRANE WATERPROOFING, ONLY IF OPTIONAL CONSTRUCTION JOINT IS USED. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY STRUCTURES".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-390			
	DRAWN BY	CLP	PLANS CK'D AEB
NORTH ABUTMENT WINGS 3 AND 4 DETAILS		SHEET 9 OF 18 59	



SECTION THRU BODY

- (A07) SUPPORT ABUTMENT ON HP 12 x 53 STEEL PILING, ESTIMATED 30'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE. PRE-BORE 27'-0".
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A19) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

B501

B502, B407, B409

B408

B405

B804, B510, B811

B416

B417

B418

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501		72	5'-11"	X		ABUT BODY STIRRUPS
B502		36	8'-6"	X		ABUT BODY STIRRUPS - TOP U-BAR
B503		9	35'-0"			ABUT BODY HORIZ. - F.F.
B804		18	23'-10"	X		ABUT BODY HORIZ. - B.F.
B405		27	3'-0"	X		ABUT BODY TIE BARS
B406		2	34'-10"			ABUT BODY HORIZ. TOP @ NOTCH HORIZ.
B407		24	3'-9"	X		ABUT BODY VERT. TOP @ NOTCH VERT.
B408	X	44	8'-11"	X	▲	WINGS 3 & 4 STIRRUPS
B409	X	8	10'-3"	X		WINGS 3 & 4 STIRRUPS
B510	X	18	11'-9"	X		WINGS 3 & 4 LOWER HORIZ - F.F.
B811	X	18	13'-5"	X		WINGS 3 & 4 LOWER HORIZ. - B.F.
B412	X	4	10'-2"			WINGS 3 & 4 UPPER HORIZ.
B413	X	4	9'-0"			WINGS 3 & 4 UPPER HORIZ.
B414	X	4	6'-10"			WINGS 3 & 4 UPPER HORIZ.
B415	X	4	4'-9"			WINGS 3 & 4 UPPER HORIZ.
B416	X	4	10'-6"	X		WINGS 3 & 4 UPPER DIAG.
B417	X	10	8'-2"	X		WINGS 3 & 4 TOP HORIZ. CORNER
B418	X	12	5'-6"	X		WINGS 3 & 4 TOP VERT. CORNER

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D.	LENGTH
B408	4 SERIES OF 11	7'-9" TO 10'-2"

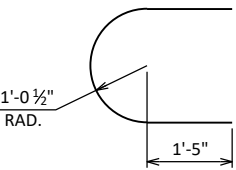
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-390			
		DRAWN BY	PLANS CK'D AEB
NORTH ABUTMENT BILL OF BARS		SHEET 10 OF 18 60	

BILL OF BARS

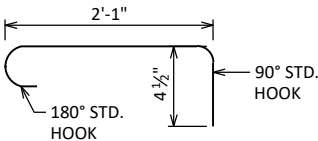
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
P501		62	15'-6"			COLUMN VERT.
P402		34	27'-0"			COLUMN HORIZ.
P403		34	6'-1"	X		COLUMN HORIZ.
P404		128	2'-11"	X		COLUMN TIES
P505		15	4'-7"	X		COLUMN TOP
P506	x	20	2'-0"			COLUMN DOWELS

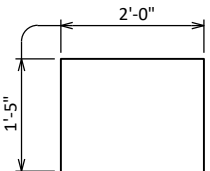
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



P403

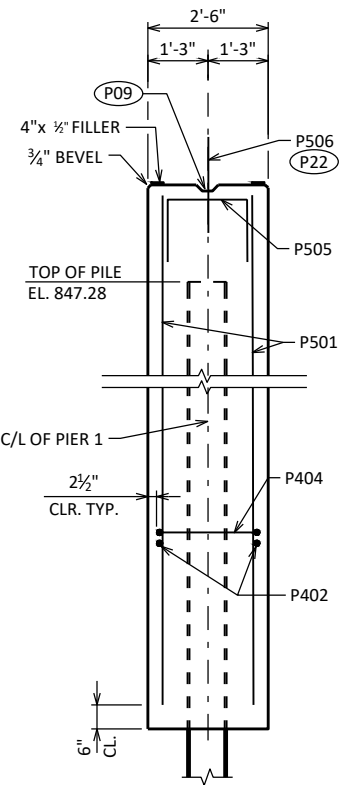


P404

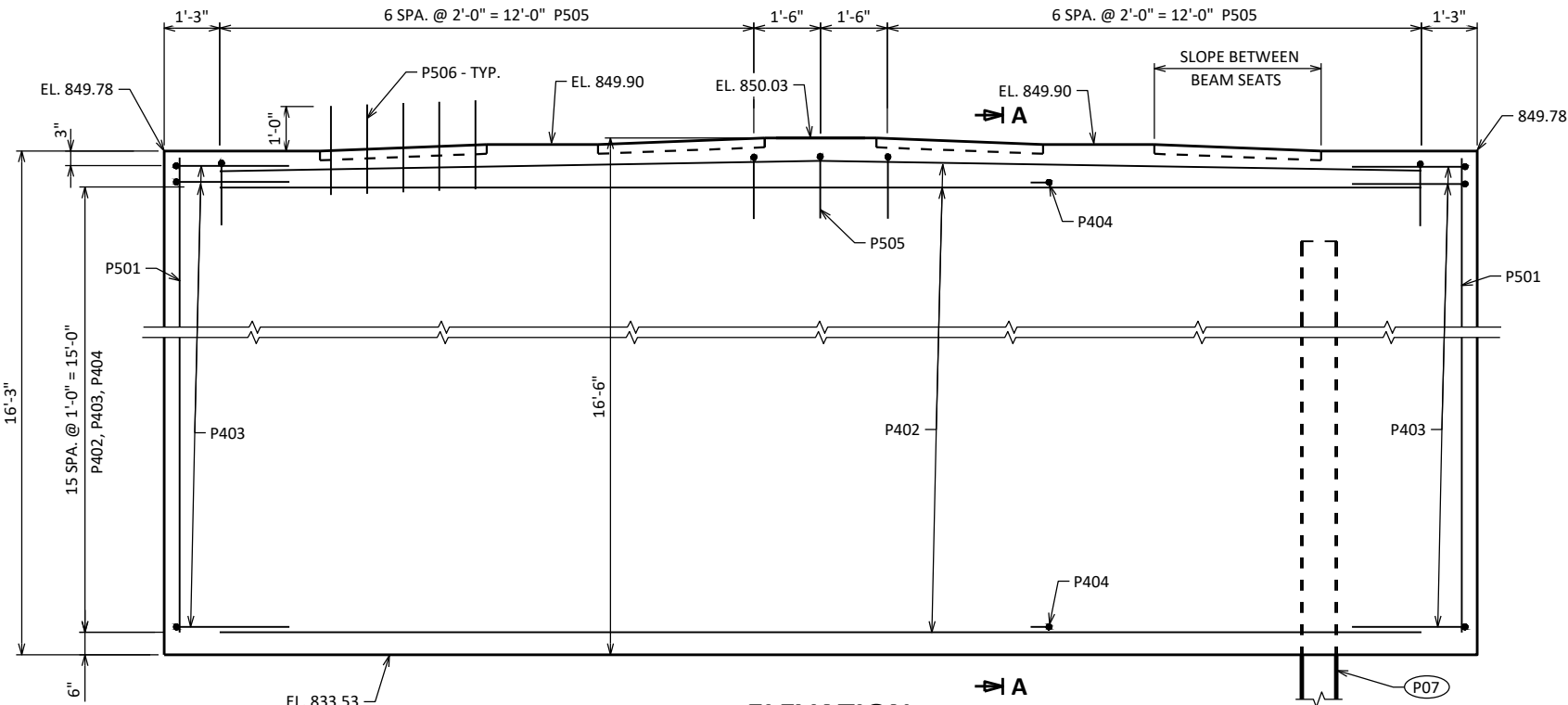


P505

- (P09) KEYWAY CONST. JOINT FORMED BY BEVELED 2 X 6 BETWEEN BEAM SEATS.
- (P07) SUPPORT PIER ON HP 12 X 53 STEEL PILING, ESTIMATED 43'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE. PRE-BORE 29'-0".
- (P22) BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
- ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- INDICATES GIRDER NUMBER.

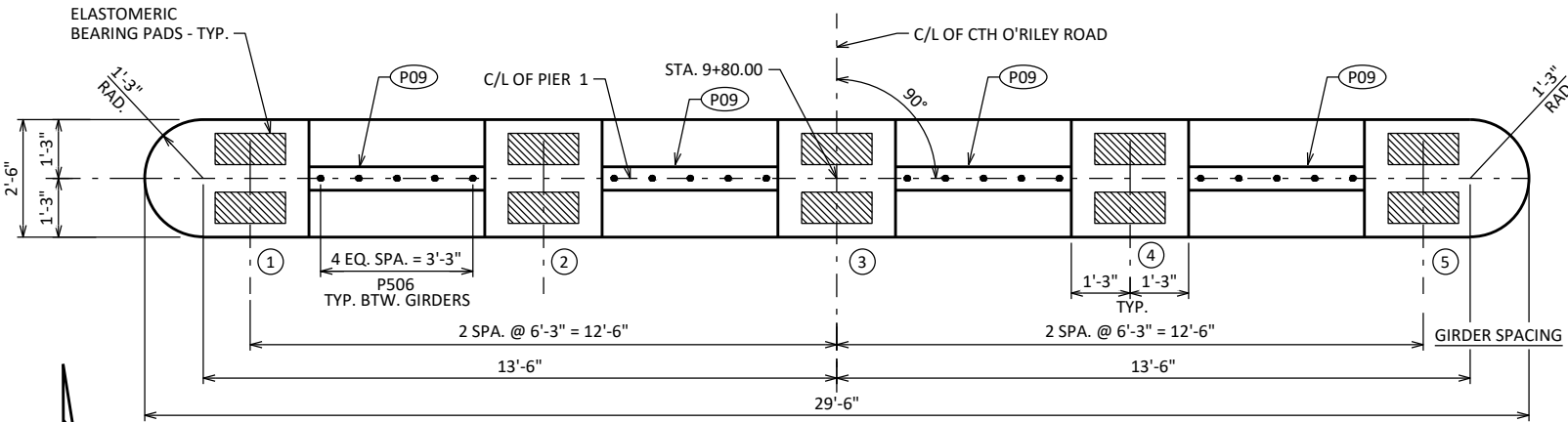


SECTION A

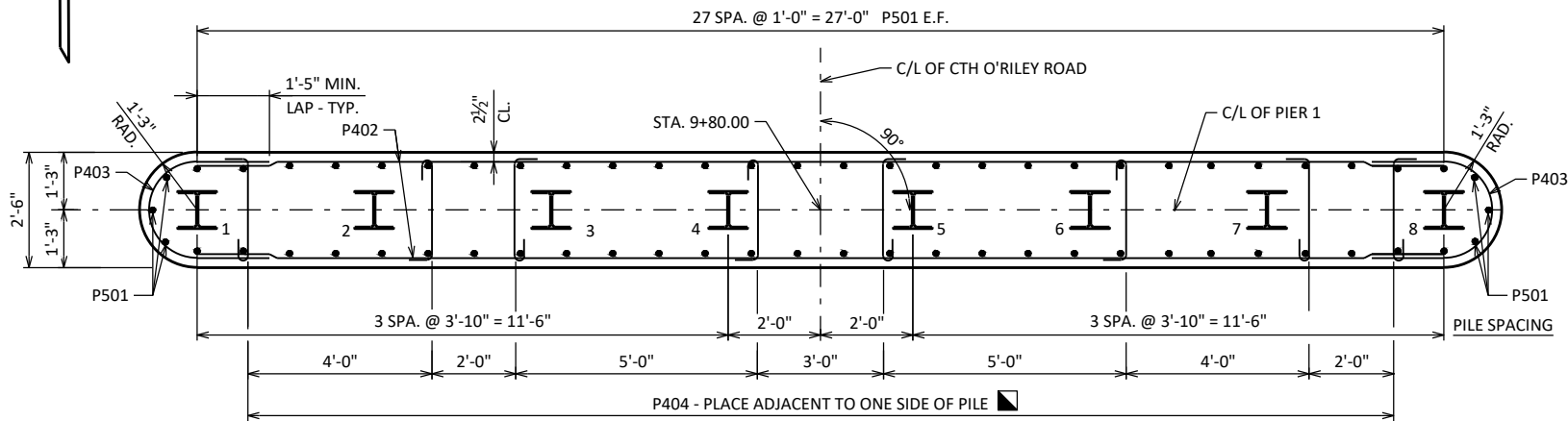


ELEVATION

LOOKING NORTH



PLAN



PILE LAYOUT

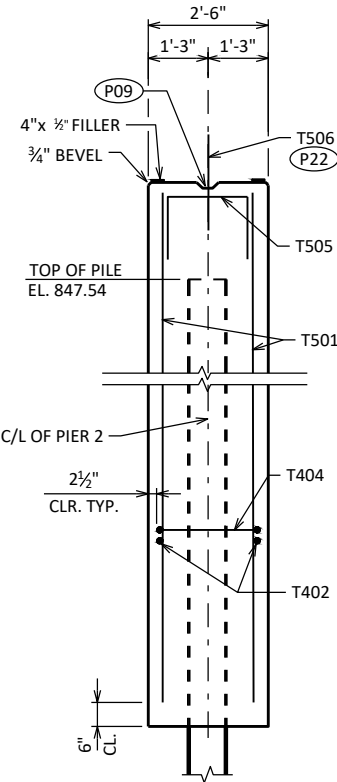
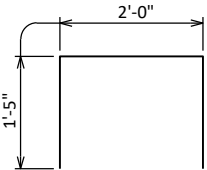
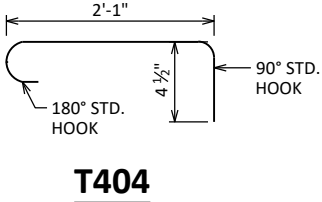
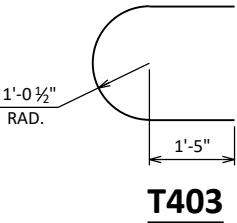
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-390			
DRAWN BY		CLP	PLANS CK'D AEB
PIER 1		SHEET 11 OF 18 61	

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

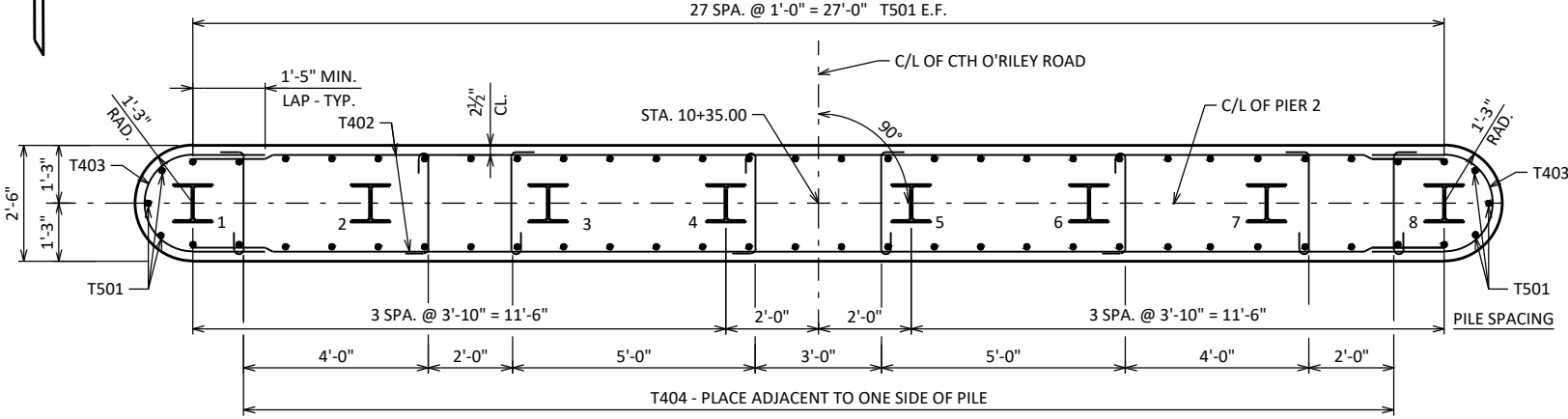
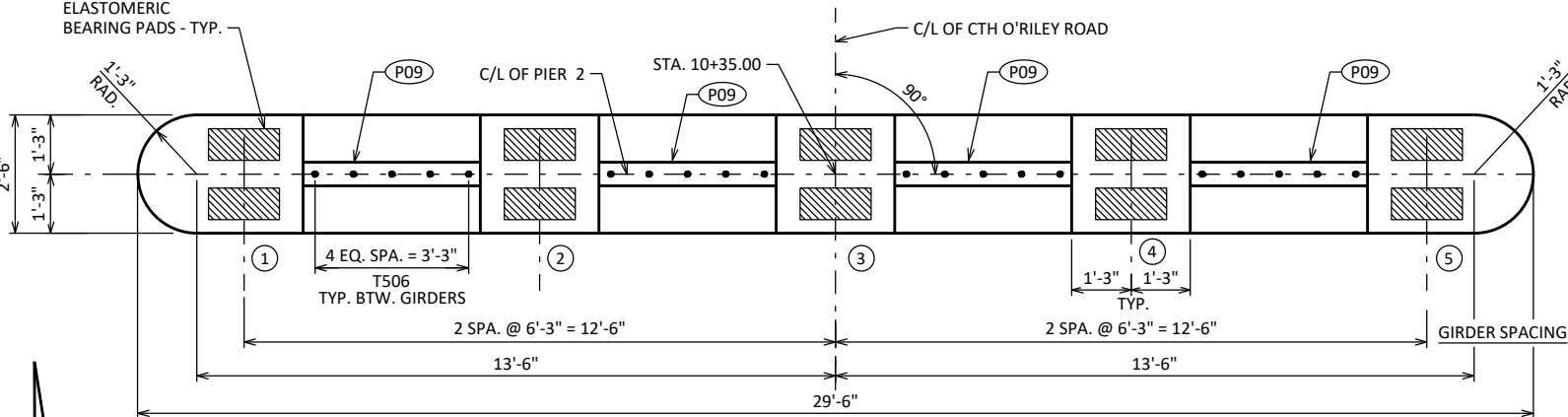
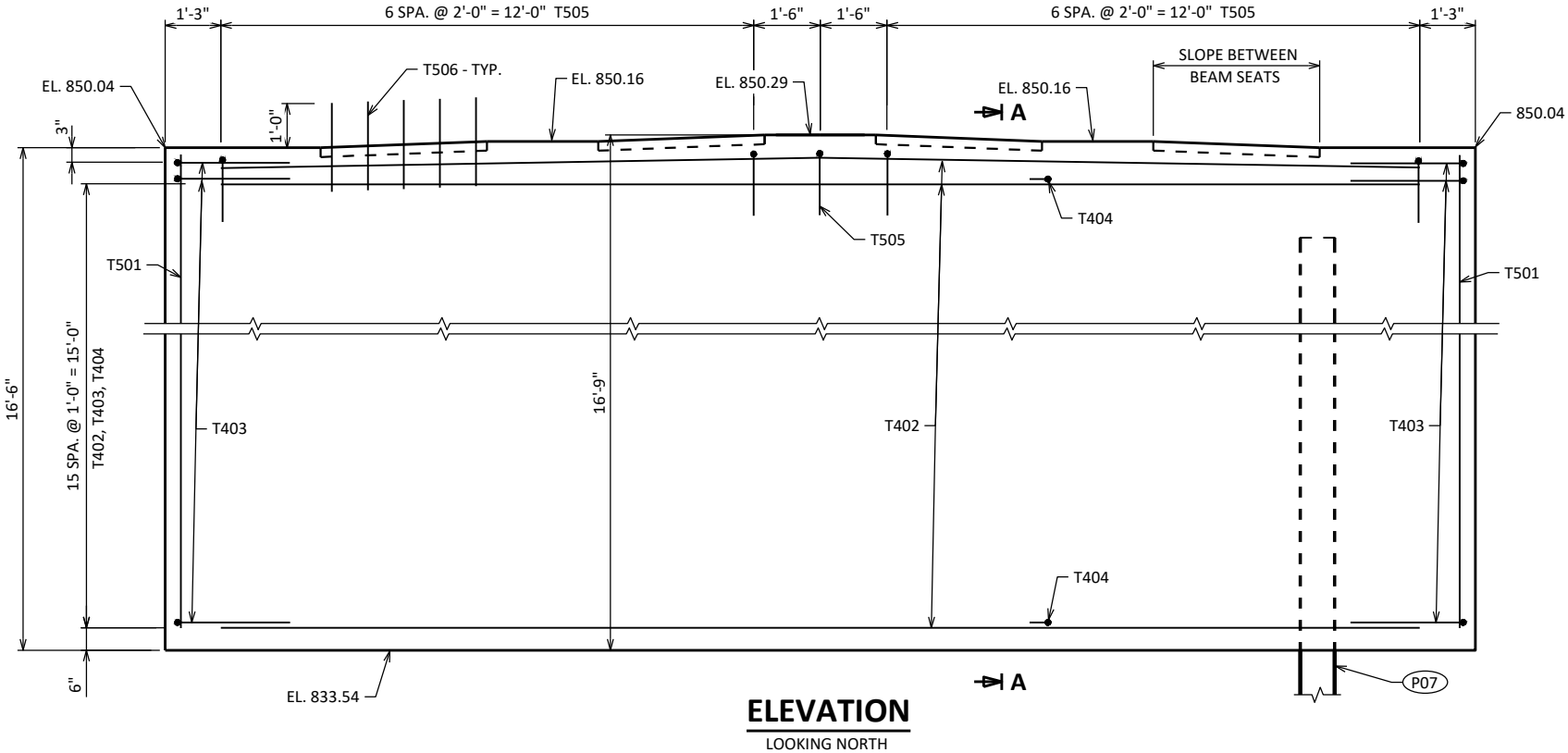
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
T501		62	15'-9"			COLUMN VERT.
T402		34	27'-0"			COLUMN HORIZ.
T403		34	6'-1"	X		COLUMN HORIZ.
T404		128	2'-11"	X		COLUMN TIES
T505		15	4'-7"	X		COLUMN TOP
T506	x	20	2'-0"			COLUMN DOWELS

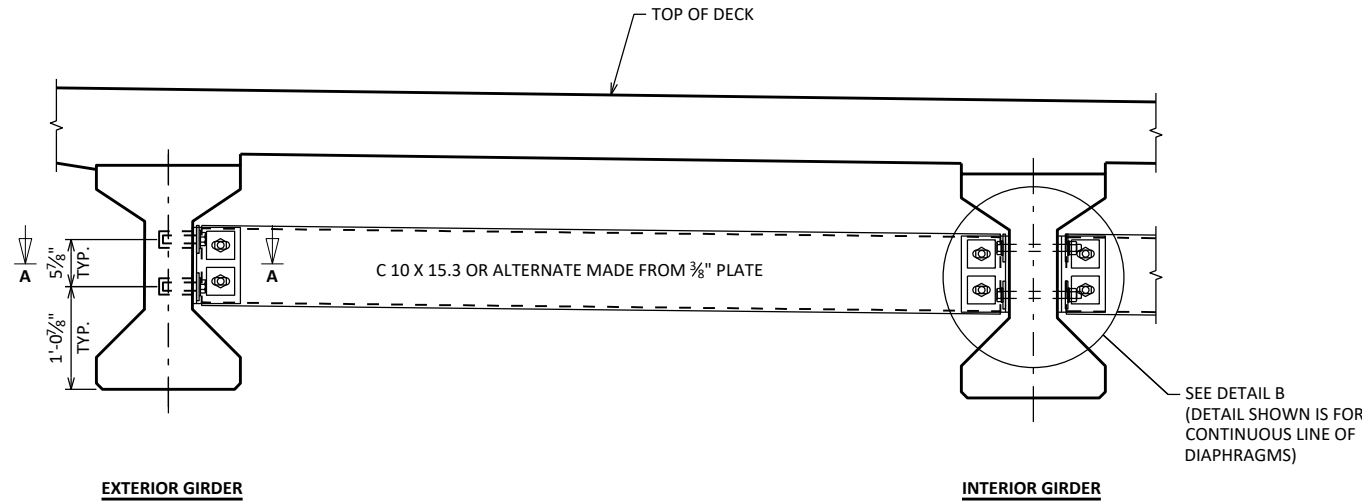
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



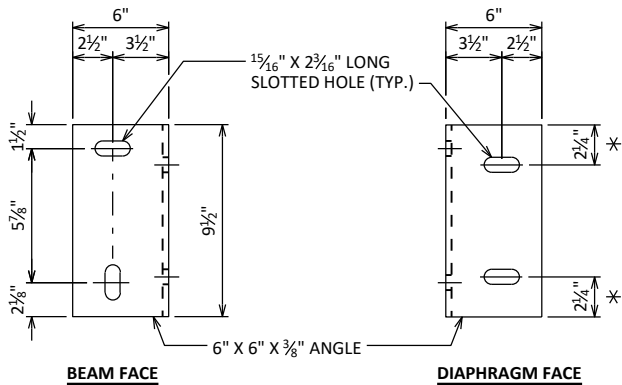
- (P09) KEYWAY CONST. JOINT FORMED BY BEVELED 2 X 6 BETWEEN BEAM SEATS.
- (P07) SUPPORT PIER ON HP 12 X 53 STEEL PILING, ESTIMATED 43'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE. PRE-BORE 29'-0".
- (P22) BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
- ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- INDICATES GIRDER NUMBER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-390			
DRAWN BY		CLP	PLANS CK'D AEB
PIER 2		SHEET 12 OF 18 62	

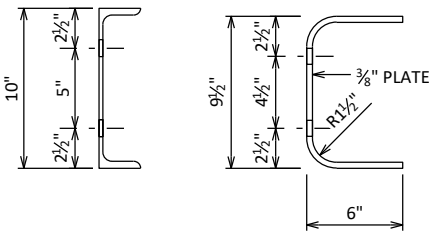




PART TRANSVERSE SECTION AT DIAPHRAGM

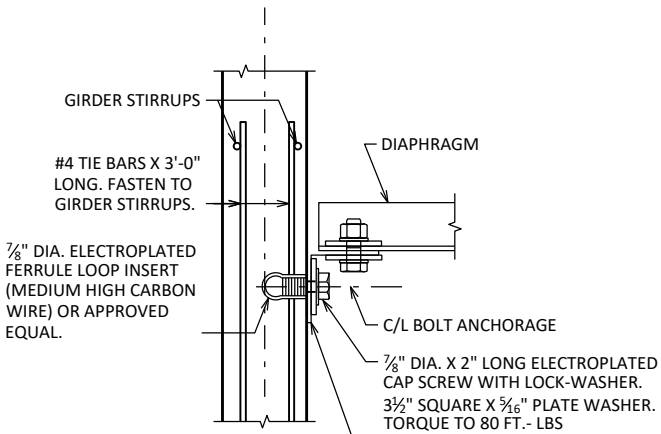


DIAPHRAGM SUPPORT



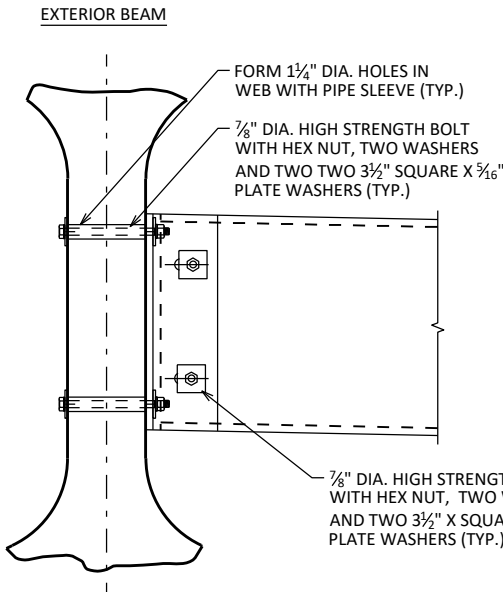
C10 X 15.3 ALTERNATE DIAPHRAGM

SECTION THRU DIAPHRAGM



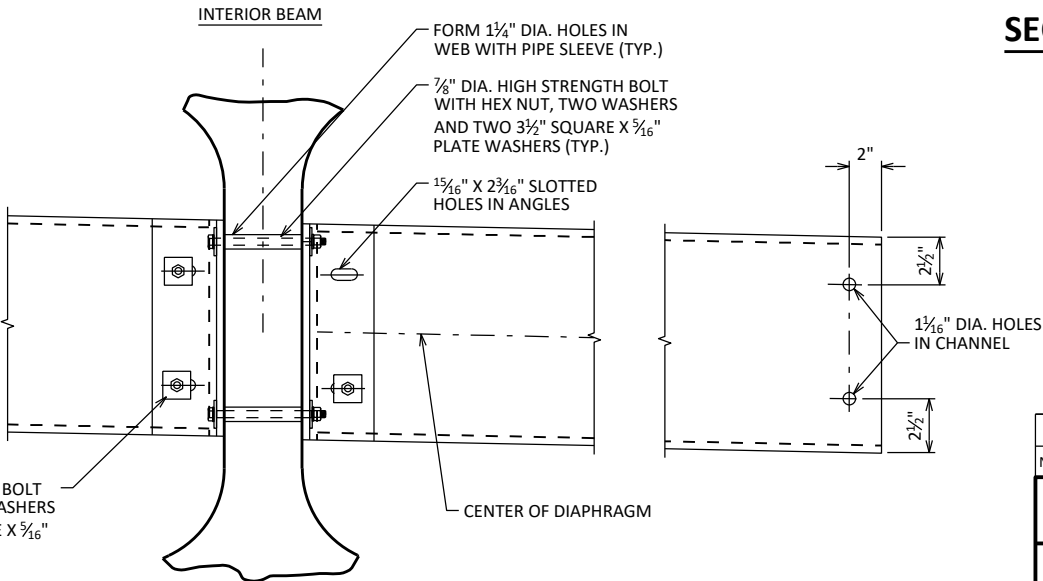
SECTION A-A

(FOR EXTERIOR ATTACHMENT)



(FOR STAGGERED DIAPHRAGM)

DETAIL B



(FOR CONTINUOUS LINE OF DIAPHRAGMS)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-390			
DRAWN BY		CLP	PLANS CK'D AEB
STEEL DIAPHRAGM		SHEET 13 OF 18 63	

SCALE = 2.00

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER.

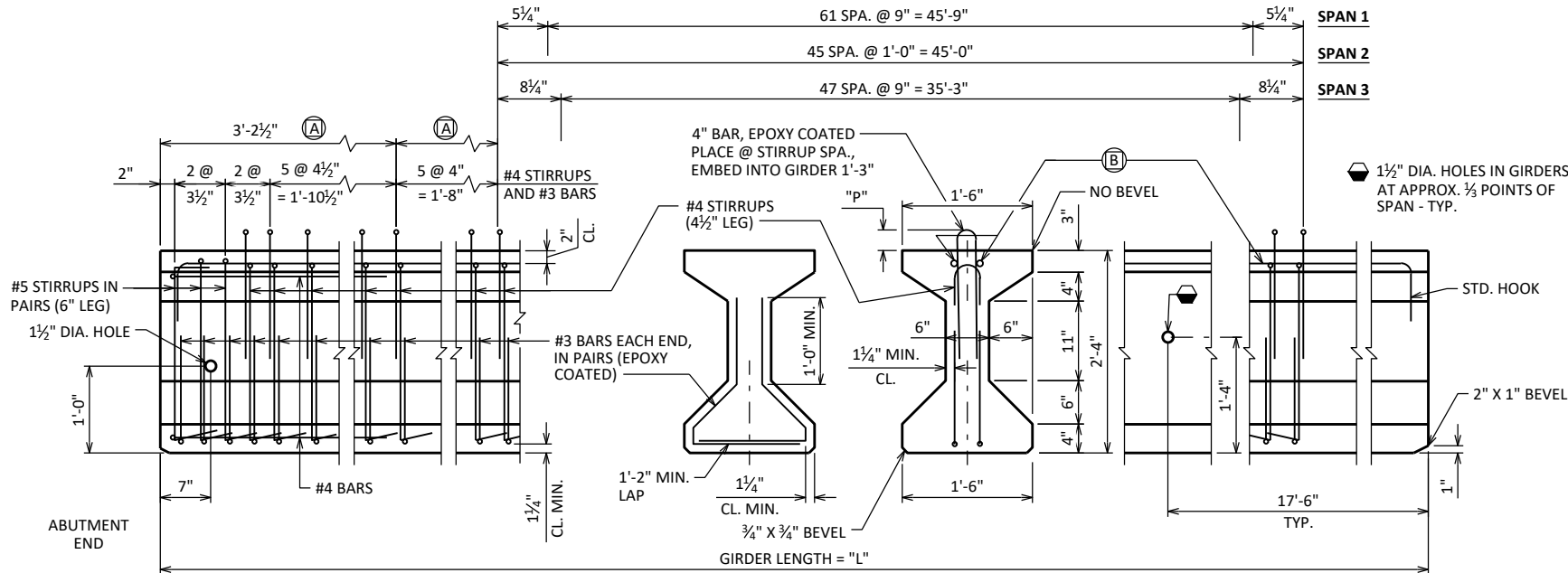
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DESIGN SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

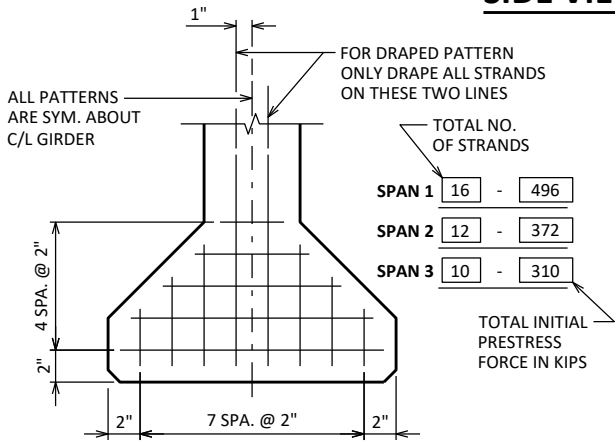
PRESTRESSING STRANDS SHALL BE (0.5" DIA.) -7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.

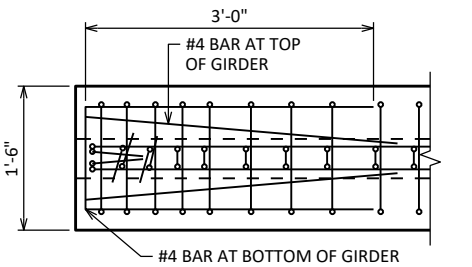


SIDE VIEW & TYPICAL SECTION IN SPAN

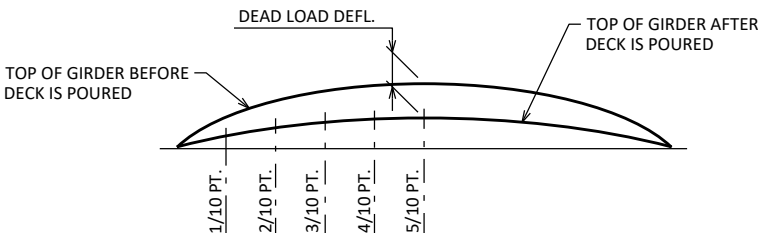
- (A) DETAIL TYP. AT EACH END
- (B) 2 #4 BARS, FULL LENGTH, MIN. LAP = 2'-4", STD. HOOK AT ENDS



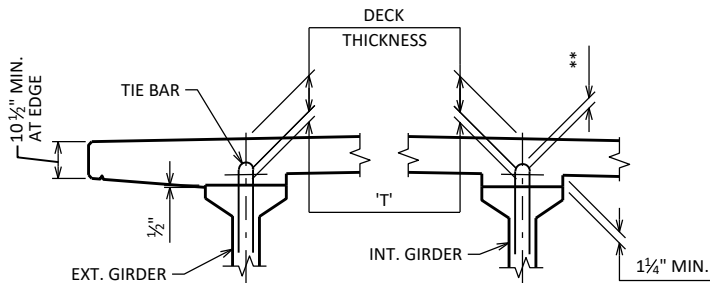
TYP. STRAND PATTERN



TOP VIEW OF GIRDER ENDS



DEAD LOAD DEFLECTION DIAGRAM



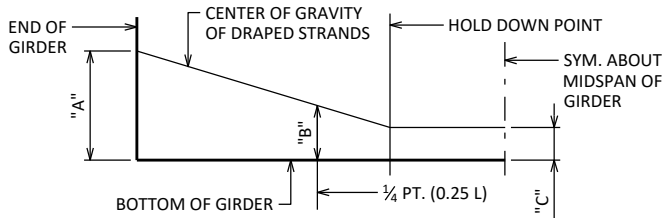
DECK HAUNCH DETAIL

IF 1 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR, ** IF 3" MINIMUM DECK EMBEDMENT OF THE TIE BAR CANNOT BE OBTAINED.

TO DETERMINE 'T', ELEVATION OF TOP OF GIRDERS AT C/L OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
+ DEAD LOAD DEFLECTION
- DECK THICKNESS
= HAUNCH HEIGHT "T"

NOTE: AN AVERAGE HAUNCH ('T') OF 2 1/2" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DRAPED STRAND PROFILE

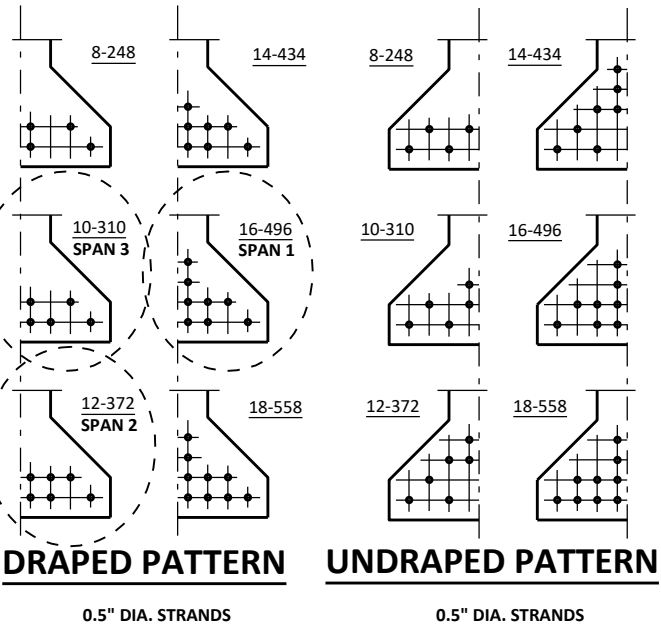
* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.)	*
1	1.2	
2	1.0	
3	0.7	

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS.
THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

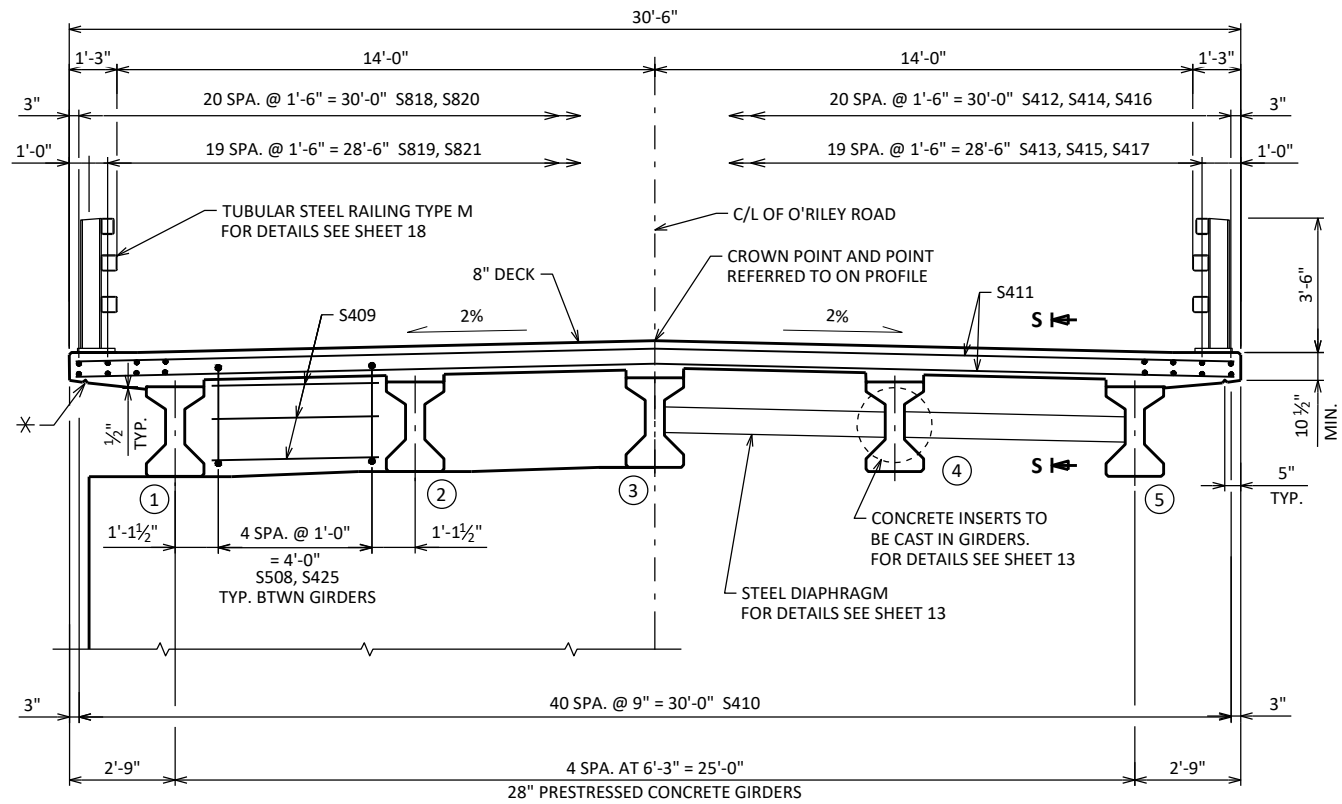
GIRDER DATA																							
SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f'c (P.S.I.)	"P" (IN.)			DIA. OF STRAND (IN.)	DRAPED PATTERN						
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10		10/10	1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER		END 1/3 OF GIRDER	TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	(IN.)			
																				"A"	"B" MIN.	"B" MAX.	"C"
1	1 & 5	56'-4½"	0.2	0.5	0.7	0.8	0.8	0.8	0.7	0.5	0.2	8,000	7	7	7	0.5	16	6,400	23	9.5	12.5	5	
1	2 - 4	56'-4½"	0.2	0.5	0.7	0.8	0.8	0.8	0.7	0.5	0.2	8,000	7	7	7	0.5	16	6,400	23	9.5	12.5	5	
2	1 & 5	54'-9"	0.2	0.4	0.6	0.7	0.7	0.7	0.6	0.4	0.2	8,000	7	7	7	0.5	12	6,400	25	8.5	11.5	3	
2	2 - 4	54'-9"	0.2	0.4	0.6	0.7	0.7	0.7	0.6	0.4	0.2	8,000	7	7	7	0.5	12	6,400	25	8.5	11.5	3	
3	1 & 5	46'-4½"	0.1	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.1	8,000	7	7	7	0.5	10	6,400	25	8.5	11.5	3	
3	2 - 4	46'-4½"	0.1	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.1	8,000	7	7	7	0.5	10	6,400	25	8.5	11.5	3	



DRAPED PATTERN

UNDRAPED PATTERN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-390			
DRAWN BY		CLP	PLANS CK'D AEB
28" PRESTRESSED GIRDER DETAILS		SHEET 14 OF 18 64	



AT PIER

IN SPAN

* 3/4" V-GROOVE. EXTEND V-GROOVE TO 6" FROM F.F. OF ABUTMENT DIAPHRAGMS - TYP.

TYPICAL SECTION THRU BRIDGE

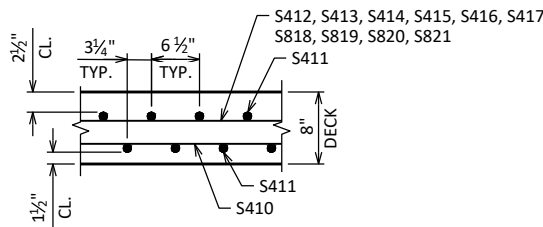
LOOKING NORTH

BILL OF BARS

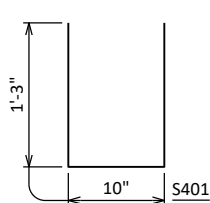
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	40	3'-2"	X		DIAPH. @ ABUT. NOTCH VERT.
S402	X	16	3'-7"			DIAPH. @ ABUT. NOTCH HORIZ.
S503	X	68	10'-3"	X		DIAPH. @ ABUT. VERT.
S604	X	10	30'-2"			DIAPH. @ ABUT. HORIZ.
S605	X	12	1'-8"			DIAPH. @ ABUT. EXT. GIRDERS HORIZ.
S606	X	24	4'-5"			DIAPH. @ ABUT. BTW. GIRDERS HORIZ.
S507	X	20	6'-0"			DIAPH. @ ABUT. THRU GIRDERS HORIZ.
S508	X	40	8'-2"	X		DIAPH. @ PIER VERT.
S409	X	80	4'-5"			DIAPH. @ PIER HORIZ.
S410	X	164	41'-1"			DECK LONG. BOTTOM
S411	X	589	30'-2"			DECK TRANS. TOP & BOTTOM
S412	X	21	36'-0"			DECK LONG. TOP SPAN 1
S413	X	40	26'-4"			DECK LONG. TOP SPAN 1
S414	X	21	21'-8"			DECK LONG. TOP SPAN 2
S415	X	20	30'-3"			DECK LONG. TOP SPAN 2
S416	X	21	33'-4"			DECK LONG. TOP SPAN 3
S417	X	20	25'-5"			DECK LONG. TOP SPAN 3
S818	X	21	31'-11"			DECK LONG. TOP @ PIER 1
S819	X	20	29'-11"			DECK LONG. TOP @ PIER 1
S820	X	21	42'-11"			DECK LONG. TOP @ PIER 2
S821	X	20	29'-3"			DECK LONG. TOP @ PIER 2
S622	X	104	11'-8"	X		DECK @ RAIL POSTS
S623	X	192	6'-0"			DECK @ INT. RAIL POSTS
S624	X	16	4'-8"	X		DECK @ EXT. RAIL POSTS
S425	X	40	8'-7"	X		DIAPH. @ PIER HORIZ.

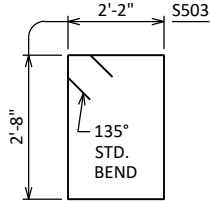
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



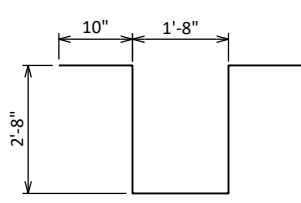
SECTION S-S



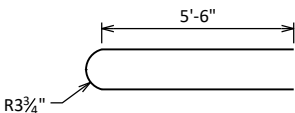
S401



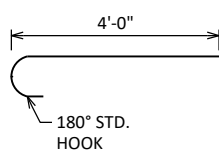
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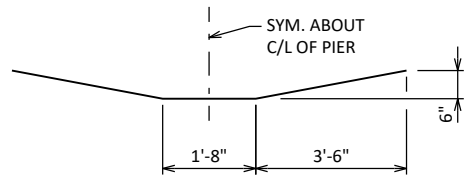
S508



S622



S624



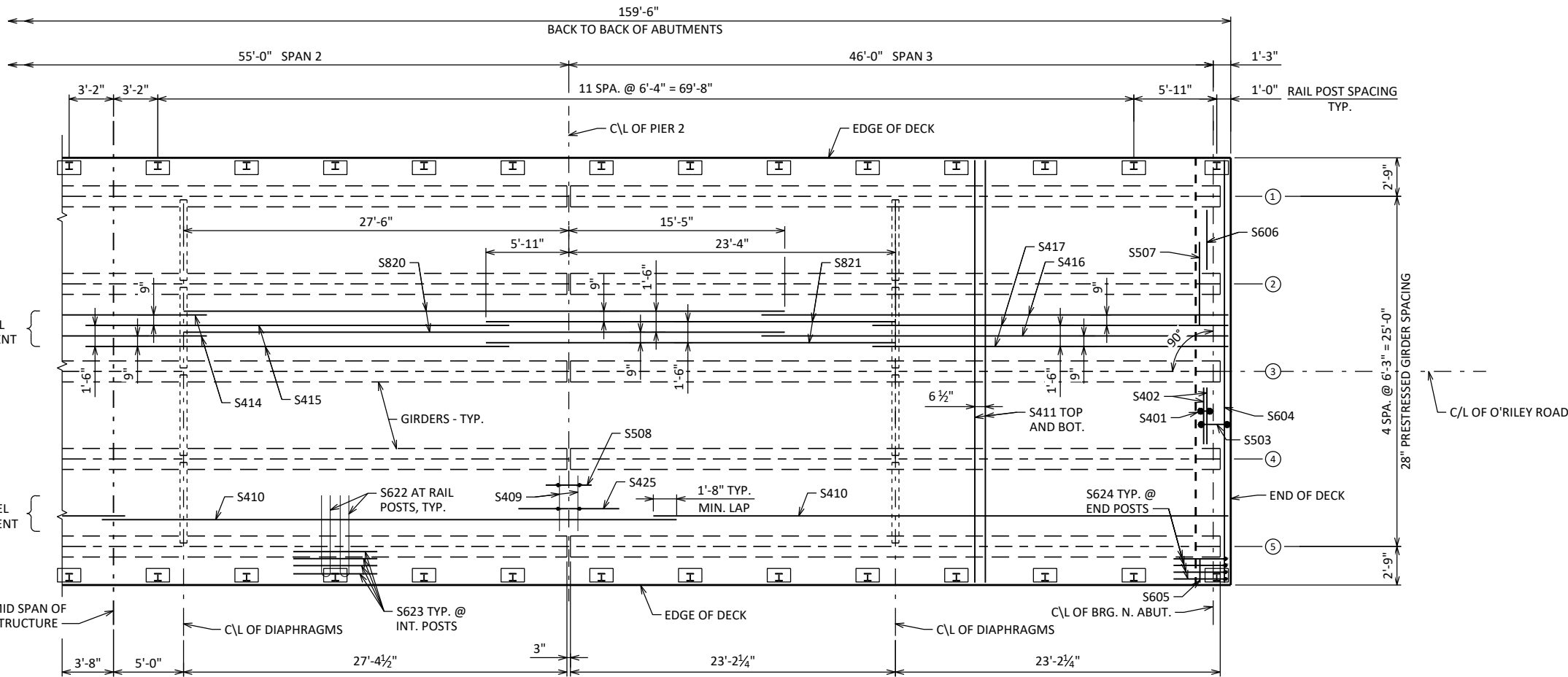
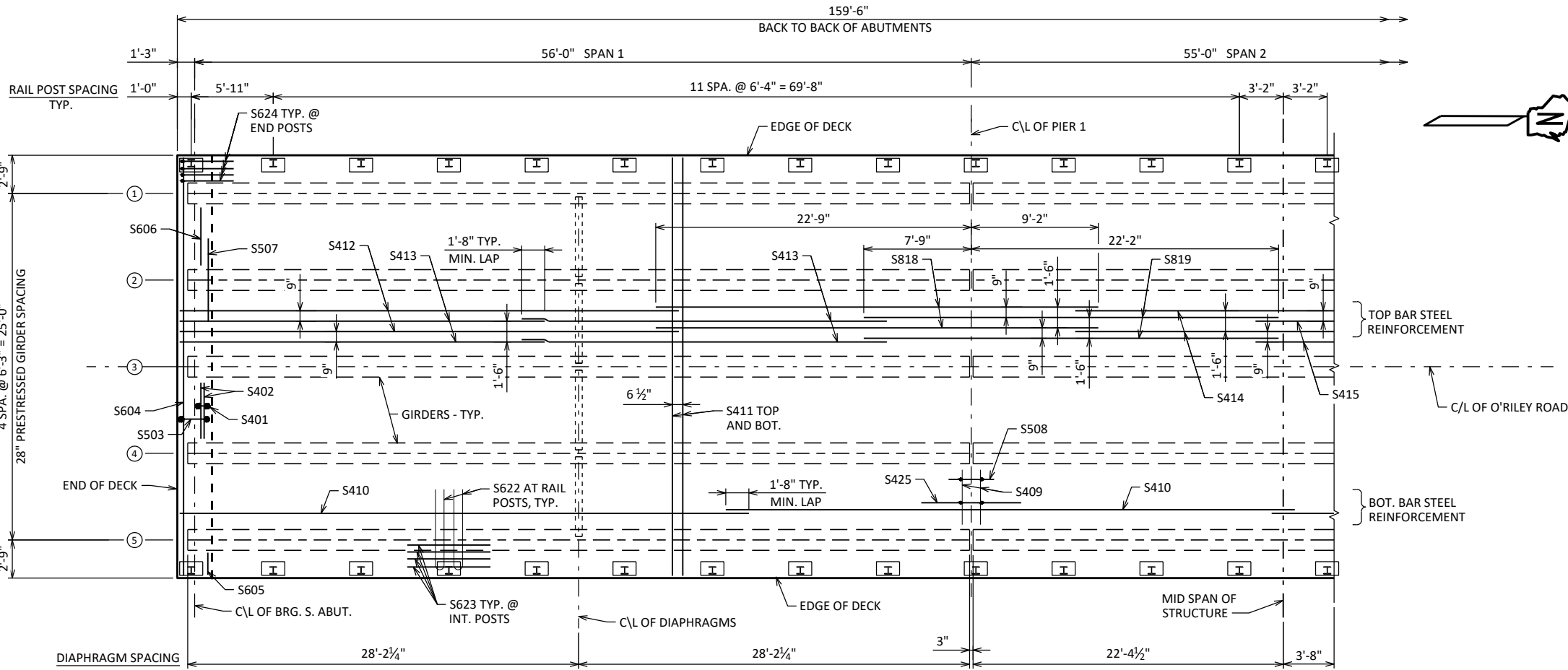
S425

TOP OF DECK ELEVATIONS

LOCATION	C/L S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L PIER 1
W. EDGE OF DECK	852.70	852.73	852.76	852.78	852.81	852.84	852.87	852.89	852.92	852.95	852.97
GIRDER 1	852.76	852.79	852.81	852.84	852.87	852.89	852.92	852.95	852.97	853.00	853.03
GIRDER 2	852.88	852.91	852.94	852.96	852.99	853.02	853.05	853.07	853.10	853.13	853.15
C/L OF ROAD & GIRDER 3	853.01	853.04	853.06	853.09	853.12	853.14	853.17	853.20	853.22	853.25	853.28
GIRDER 4	852.88	852.91	852.94	852.96	852.99	853.02	853.05	853.07	853.10	853.13	853.15
GIRDER 5	852.76	852.79	852.81	852.84	852.87	852.89	852.92	852.95	852.97	853.00	853.03
E. EDGE OF DECK	852.70	852.73	852.76	852.78	852.81	852.84	852.87	852.89	852.92	852.95	852.97

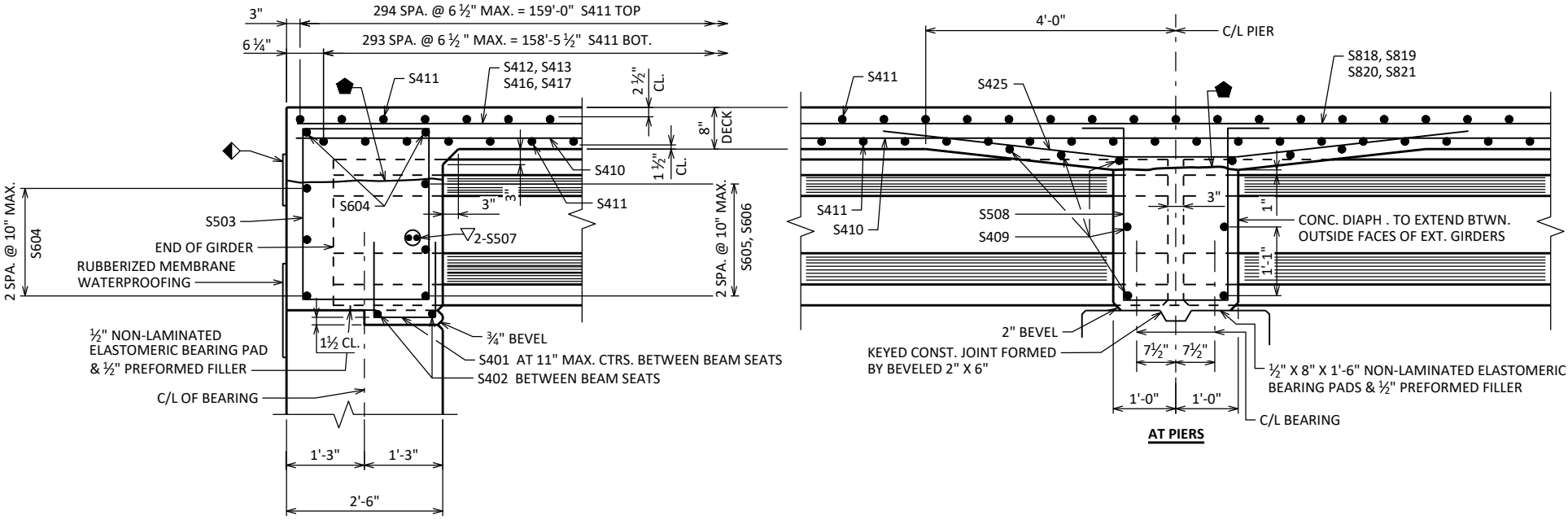
LOCATION	C/L PIER 1	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L PIER 2	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L N. ABUT.
W. EDGE OF DECK	852.97	853.00	853.02	853.05	853.08	853.10	853.13	853.16	853.18	853.21	853.23	853.26	853.28	853.30	853.32	853.34	853.37	853.39	853.41	853.43	853.45
GIRDER 1	853.03	853.05	853.08	853.11	853.13	853.16	853.18	853.21	853.24	853.26	853.29	853.31	853.33	853.36	853.38	853.40	853.42	853.44	853.47	853.49	853.51
GIRDER 2	853.15	853.18	853.20	853.23	853.26	853.28	853.31	853.34	853.36	853.39	853.41	853.44	853.46	853.48	853.50	853.52	853.55	853.57	853.59	853.61	853.63
C/L OF ROAD & GIRDER 3	853.28	853.30	853.33	853.36	853.38	853.41	853.43	853.46	853.49	853.51	853.54	853.56	853.58	853.61	853.63	853.65	853.67	853.69	853.72	853.74	853.76
GIRDER 4	853.15	853.18	853.20	853.23	853.26	853.28	853.31	853.34	853.36	853.39	853.41	853.44	853.46	853.48	853.50	853.52	853.55	853.57	853.59	853.61	853.63
GIRDER 5	853.03	853.05	853.08	853.11	853.13	853.16	853.18	853.21	853.24	853.26	853.29	853.31	853.33	853.36	853.38	853.40	853.42	853.44	853.47	853.49	853.51
E. EDGE OF DECK	852.97	853.00	853.02	853.05	853.08	853.10	853.13	853.16	853.18	853.21	853.23	853.26	853.28	853.30	853.32	853.34	853.37	853.39	853.41	853.43	853.45

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-390			
DRAWN BY		CLP	PLANS CK'D AEB
SUPERSTRUCTURE		SHEET 15 OF 18 65	

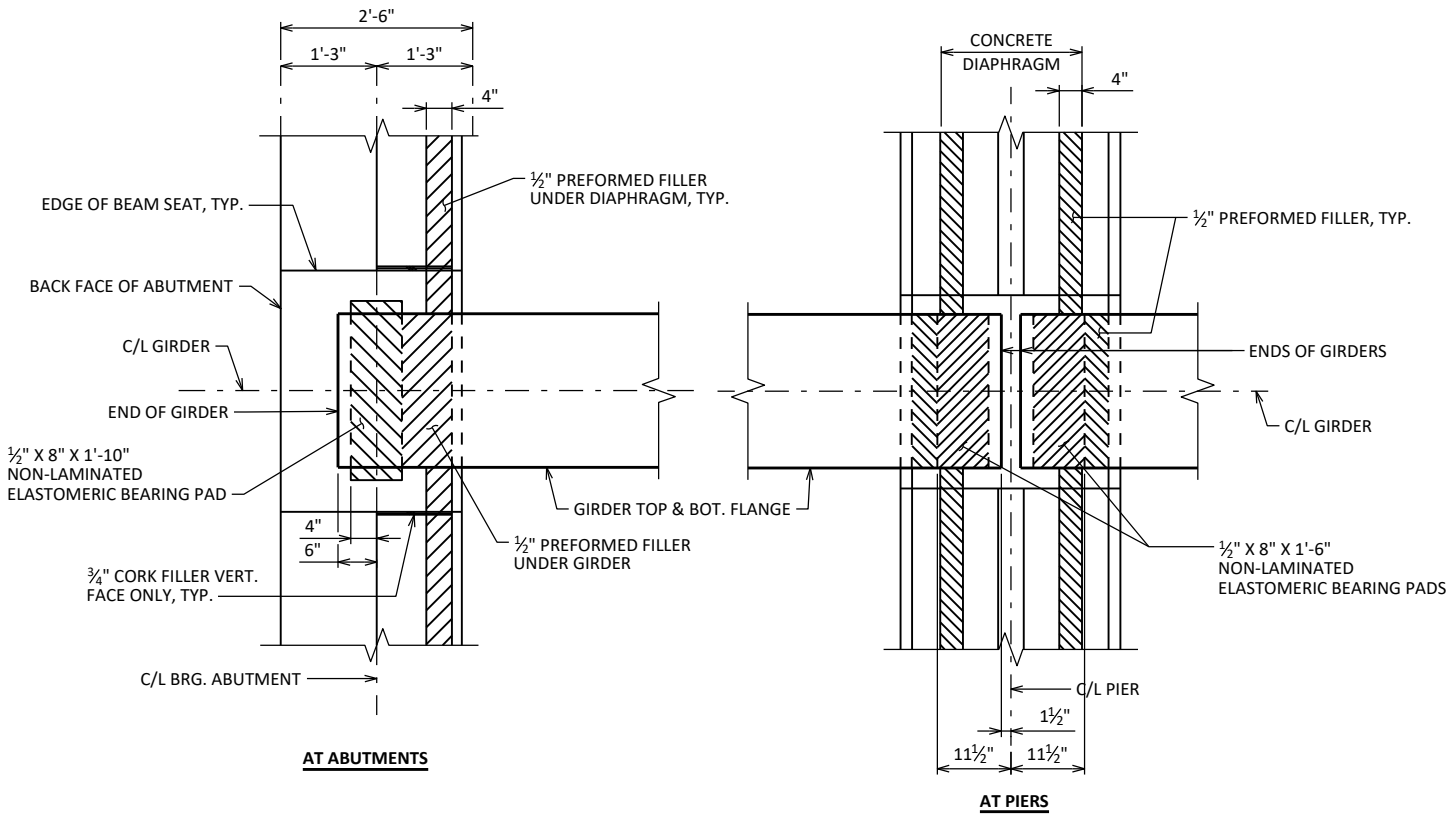


PLAN

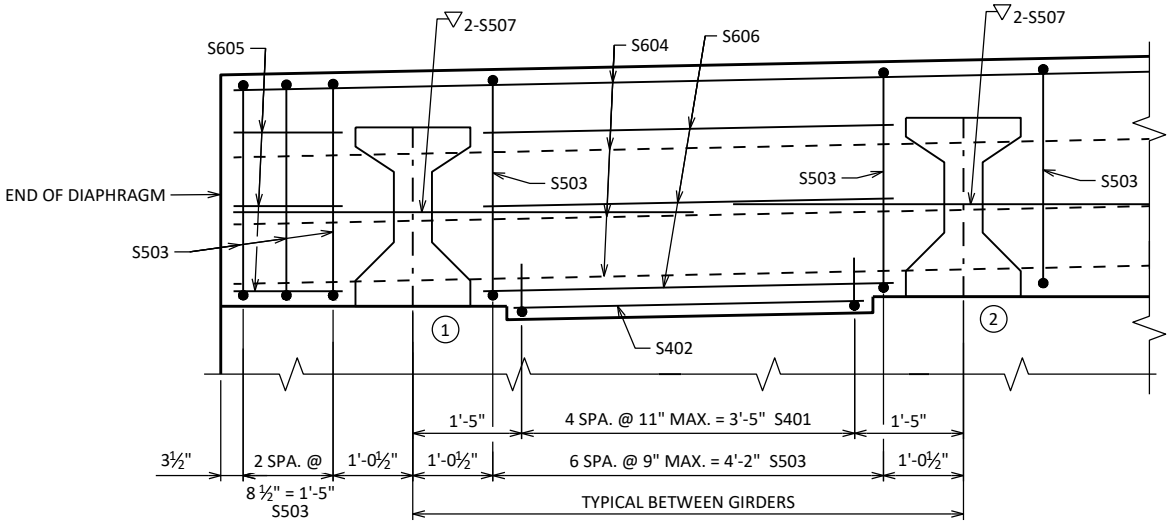
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-390			
DRAWN BY		CLP	PLANS CK'D AEB
SUPERSTRUCTURE PLAN		SHEET 16 OF 18 66	



PART. LONGIT. SECTION



BEARING PAD DETAIL



PART. SECTION AT ABUTMENT

GIRDERS 1 AND 2 SHOWN, REST ARE THE SAME

- ◆ 18" RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JT. IS USED. COST INCLUDED WITH BID ITEM "CONCRETE MASONRY BRIDGES".
- ◆ OPTIONAL CONSTRUCTION JOINT. IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.
- ▽ 2 - S507 BARS. 1 1/2" DIA. HOLE IN WEB.

NO.	DATE	REVISION	BY
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STRUCTURE B-53-390			
DRAWN BY		CLP	PLANS CK'D AEB
SUPERSTRUCTURE DETAILS		SHEET 17 OF 18 67	

- (1) W6 X 25 WITH $1\frac{1}{8}"$ X $1\frac{1}{2}"$ HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 3. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- (2) PLATE $1\frac{1}{4}"$ X $11\frac{3}{4}"$ X $1'-8"$ WITH $1\frac{1}{16}"$ DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- (3A) ASTM A449 - $1\frac{1}{8}"$ DIA. X $10\frac{3}{4}"$ LONG ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD $3"$ AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING.
- (3C) ASTM A449 - $1\frac{1}{8}"$ DIA. X $1'-9"$ LONG ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD $3"$ AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
- (4) $\frac{5}{8}"$ X $11"$ X $1'-8"$ ANCHOR PLATE (GALVANIZED) WITH $1\frac{1}{16}"$ DIA. HOLES FOR ANCHOR BOLTS NO. 3
- (5) TS 5 X 4 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- (5A) TS 5 X 5 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- (6) $\frac{7}{8}"$ DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, $\frac{3}{16}"$ X $1\frac{5}{8}"$ X $1\frac{5}{8}"$ MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- (7) $\frac{1}{2}"$ THK. BACK-UP PLATE WITH 2 - $\frac{7}{8}"$ X $1\frac{1}{2}"$ THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- (8) $1"$ DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR $\frac{7}{8}"$ DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- (9) SPLICE SLEEVE FABRICATED FROM $\frac{1}{4}"$ PLATE. PROVIDE "SLIDING FIT".
- (10) $\frac{3}{8}"$ X $3\frac{3}{8}"$ X $2'-4"$ PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- (10A) $\frac{3}{8}"$ X $2\frac{5}{8}"$ X $2'-4"$ PLATE USED IN NO. 5, $\frac{3}{8}"$ X $3\frac{3}{8}"$ X $2'-4"$ PLATE USED IN NO. 5A. 2 PER RAIL.
- (11) $\frac{7}{8}"$ DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE $1\frac{5}{16}"$ X $1\frac{1}{4}"$ LONGIT. SLOTTED HOLES IN PLATE NO. 10A. AT FIELD JOINTS AND $1\frac{5}{16}"$ X $2\frac{3}{4}"$ MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A. PROVIDE $1\frac{5}{16}"$ DIA. ROUND HOLES IN TUBES NO. 5 AND NO. 5A.
- (12) $\frac{7}{8}"$ DIA. X $1\frac{1}{2}"$ LONG THREADED SHOP WELDED STUDS (2 REQ'D).
- (13) $\frac{3}{8}"$ X $8"$ X $1'-6"$ PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- (14) $\frac{7}{8}"$ DIA. X $2"$ LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- (15) $1"$ DIA. HOLES IN TUBES NO. 5A FOR $\frac{7}{8}"$ DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL $\frac{1}{8}$ TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.



LOCATION MUST BE SHOWN
ON SHOP DRAWINGS



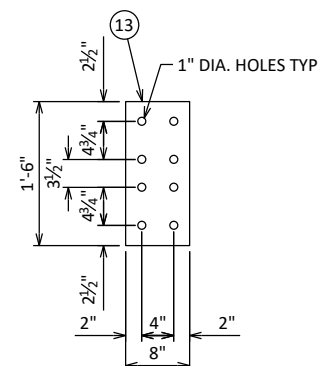
NOTE: CONNECTIONS AT LOWER RAILS SHOWN.
CONNECTIONS AT TOP RAIL SIMILAR.



THREE BEAM RAIL ATTACHMENT



AT BEAM GUARD ATTACHMENT



THREE BEAM RAIL ATTACHMENT



AT BEAM GUARD ATTACHMENT



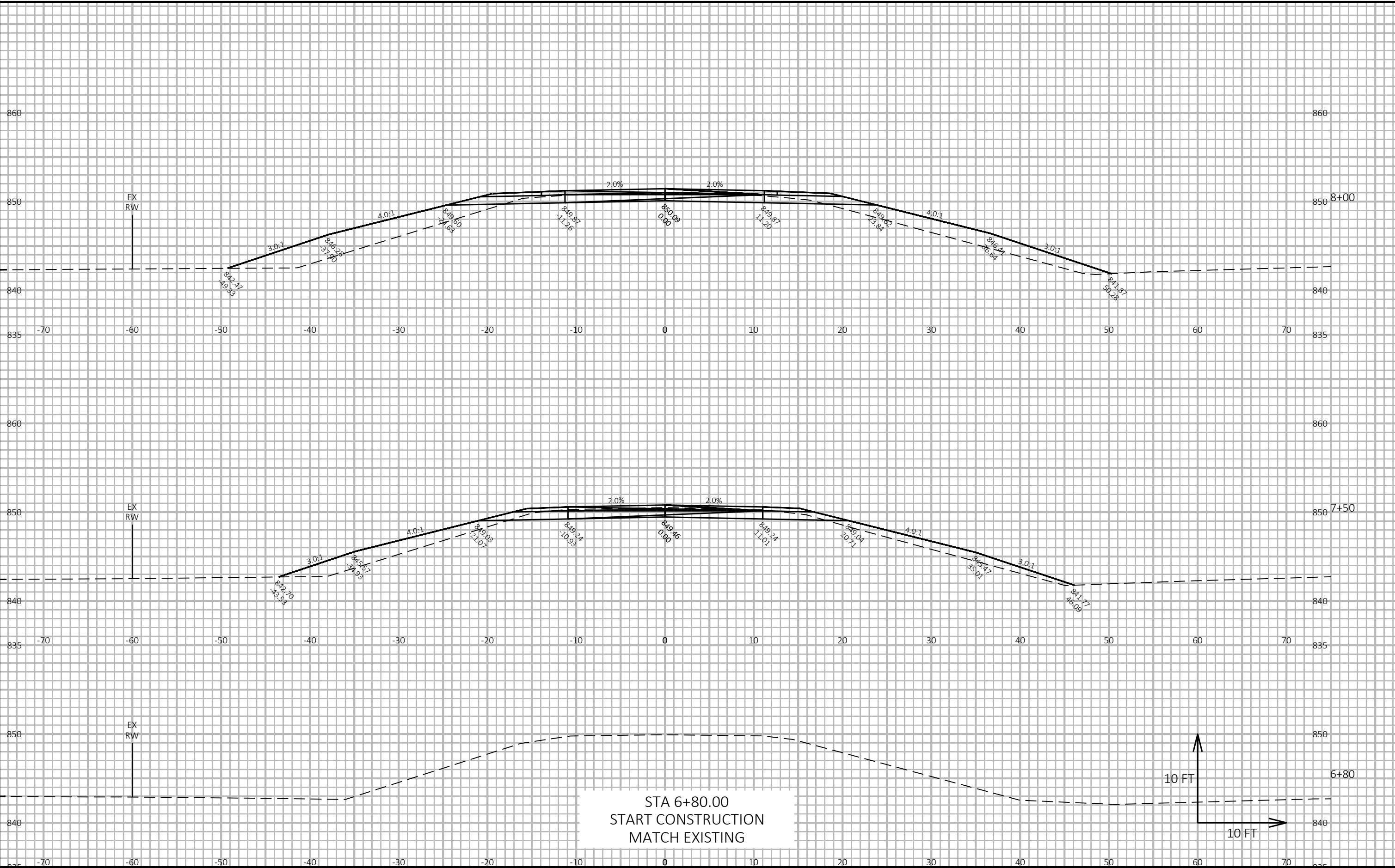
- ▲ TIE TO TOP MAT OF STEEL.
- ✱ ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.
- RDWY. OPENING OR $2\frac{1}{2}$ " MIN. FOR STRIP SEAL EXP. JOINT & ($\frac{1}{4}$ " TO $\frac{3}{4}$ ") OPENING FOR A1 ABUTMENT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-53-390	
		DRAWN BY	CLP PLANS CK'D AEB
TUBULAR STEEL RAILING TYPE M		SHEET 18 OF 18	
		68	

O'RILEY ROAD COMPUTER EARTHWORK											
Station Distance		Area (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			Mass Ordinate
		Unusable			Unusable						
		Cut	Cut	Fill	Cut	Cut	Fill	Cut	Cut	Fill	
					Note 1	Note 2	Note 3	Note 1	Note 2	Note 3	Note 4
6+80	--	0.0	0.0	0.0	--	--	--				
7+50	70.0	32.4	16.5	52.5	42	21	68	42	21	88	-46.4
8+00	50.0	26.0	16.5	96.1	54	31	138	96	52	267	-217.7
8+20	20.0	24.8	16.5	116.7	19	12	79	115	64	370	-472.4
8+32	12.0	24.5	16.5	123.7	11	7	53	126	71	439	-785.5
8+45	13.0	24.7	16.5	105.9	12	8	55	138	79	511	-1158.6
8+57	12.0	24.9	16.5	93.3	11	7	44	149	86	569	-1578.2
8+70	13.0	25.0	16.5	92.2	12	8	45	161	94	627	-2043.9
8+82	12.0	23.2	16.5	92.5	11	7	41	172	101	680	-2552.0
9+00	18.0	20.2	16.5	105.0	14	11	66	186	112	766	-3131.5
Bridge					--	--	--				
10+02.50					--	--	--				
					186	112	589				

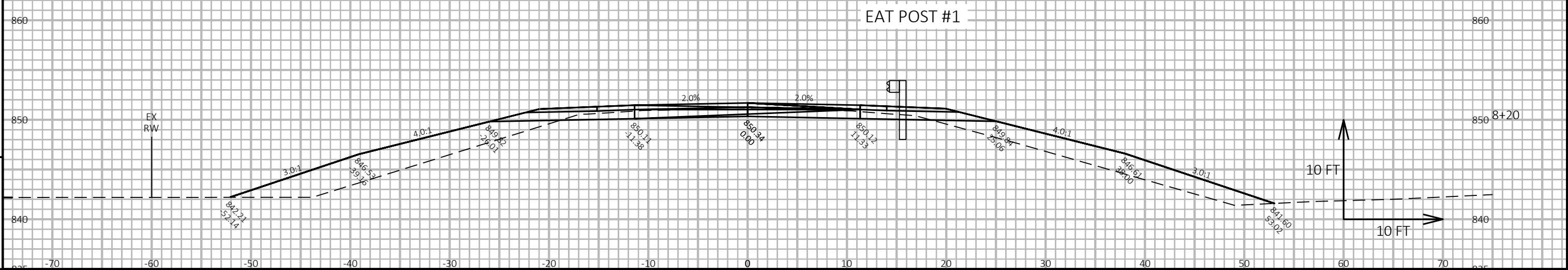
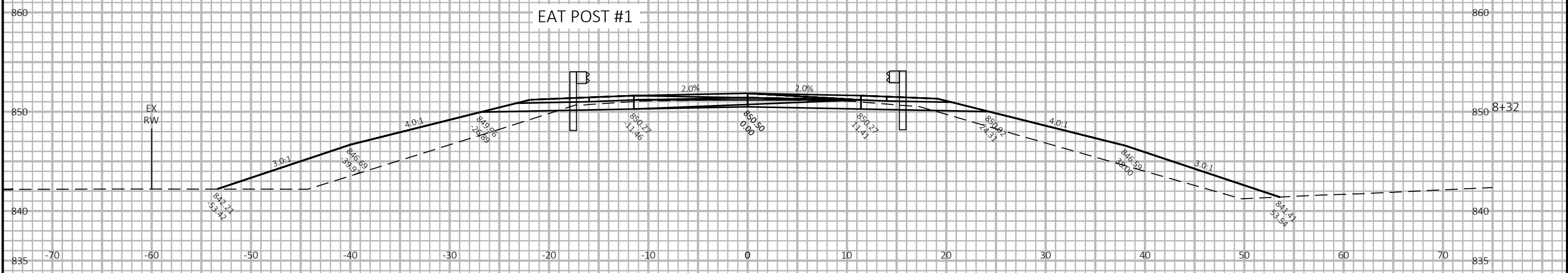
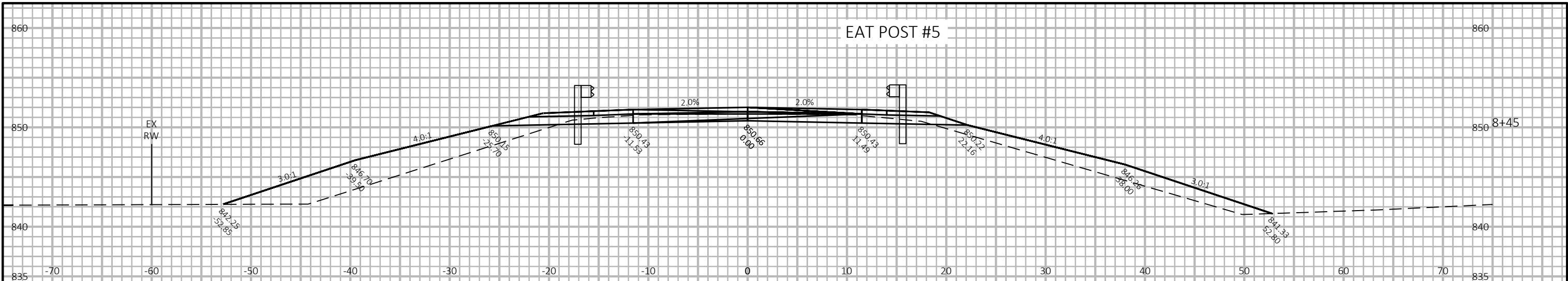
HOFSTROM ROAD COMPUTER EARTHWORK											
Station Distance		Area (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			Mass Ordinate
		Unusable			Unusable						
		Cut	Cut	Fill	Cut	Cut	Fill	Cut	Cut	Fill	
									1.00		
					Note 1	Note 2	Note 3	Note 1	Note 2	Note 3	Note 4
99+25	--	0.0	0.0	0.0	--	--	--				
99+50	25.0	10.8	16.5	13.2	5	8	6	5	8	8	-2.9
99+68	18.0	56.5	16.5	7.3	22	11	7	27	19	17	7.3
99+70	2.0	1.3	16.5	5.6	2	1	1	29	20	17	18.9
99+79	11.0	1.5	16.5	8.6	1	7	3	30	27	21	27.7
100+00	21.00	2.0	16.5	4.6	1	13	5	31	40	28	30.9
100+20	20.0	1.7	16.5	3.6	1	12	3	32	52	32	31.2
100+30	10.0	1.6	16.5	2.8	1	6	1	33	58	33	30.9
100+50	20.0	1.3	16.5	14.1	1	12	6	34	70	41	23.4
100+69	19.0	--	--	--	--	--	--				
					34	70	32				

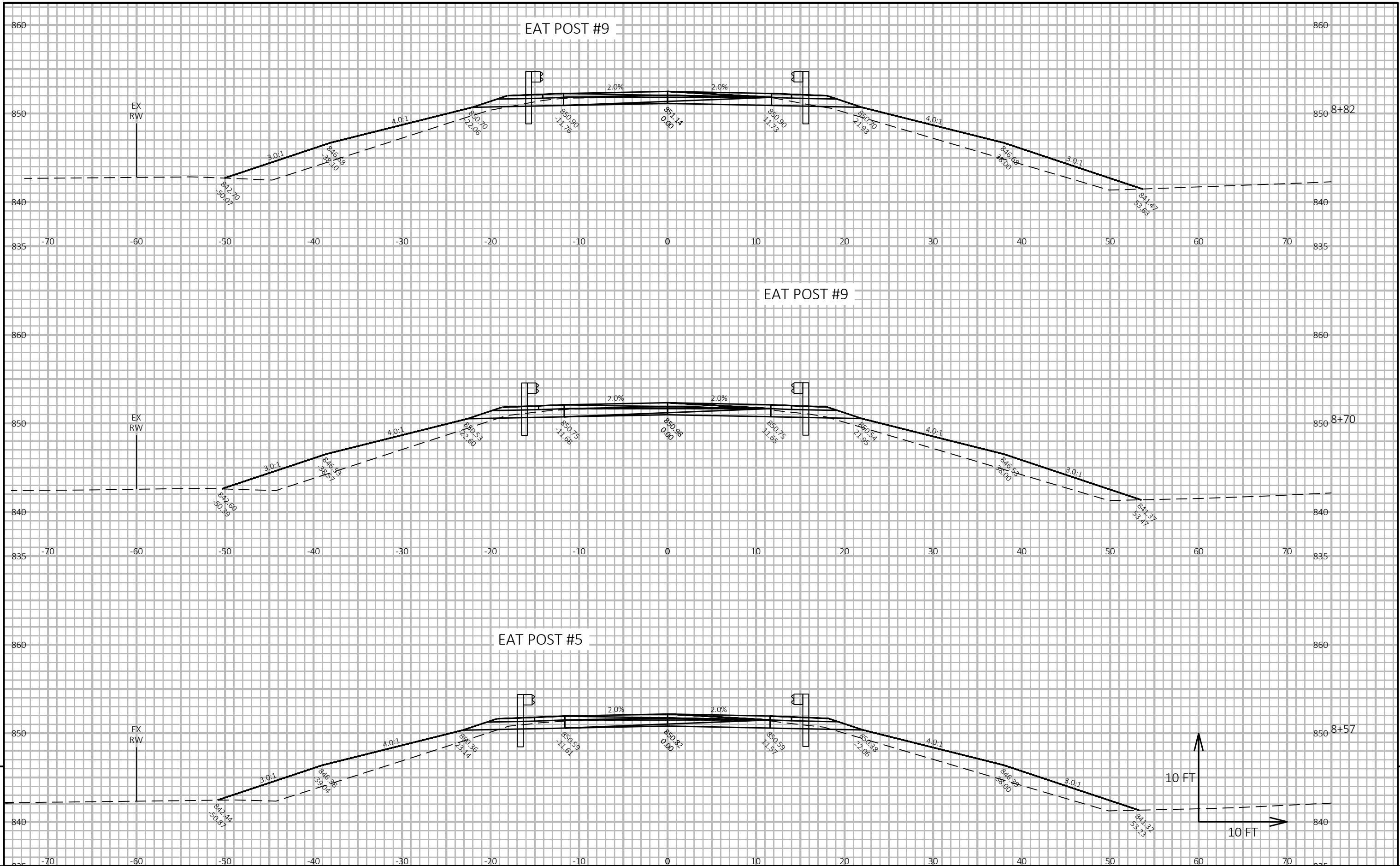
Note 1 - Cut	Usable cut only
Note 2 - Unusable Cut	Existing asphalt pavement. Not to be used inside the 1:1 road core.
Note 3 - Expanded Fill	Volume needed to be filled = Fill * 1.30
Note 4 - Mass Ordinate	(Cut - Unusable Cut) - (Expanded Fill)



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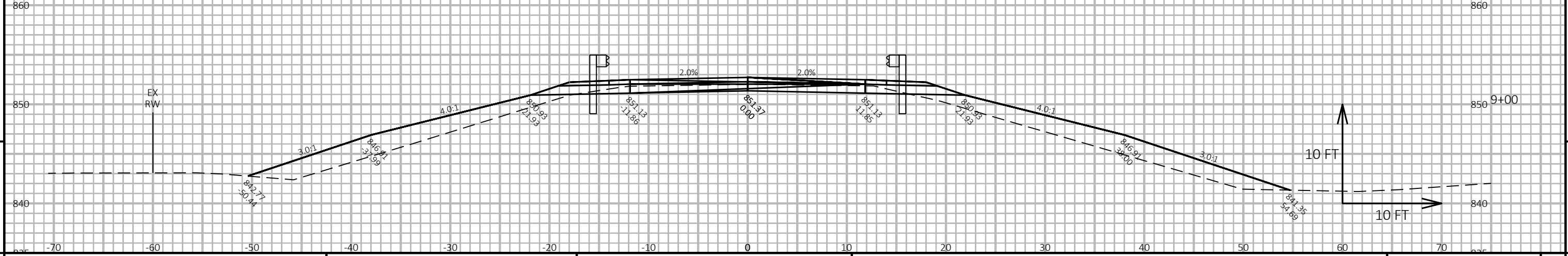


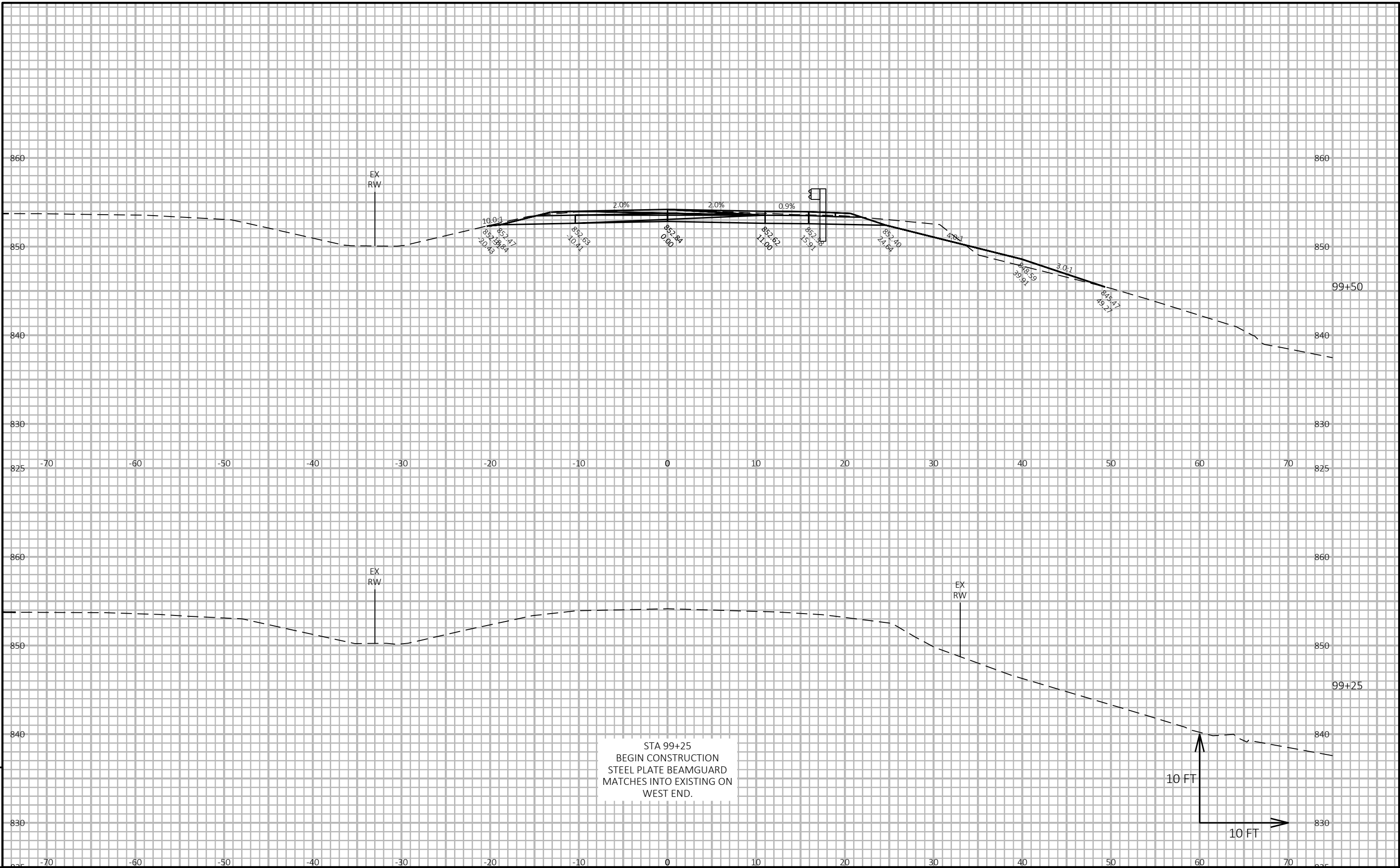


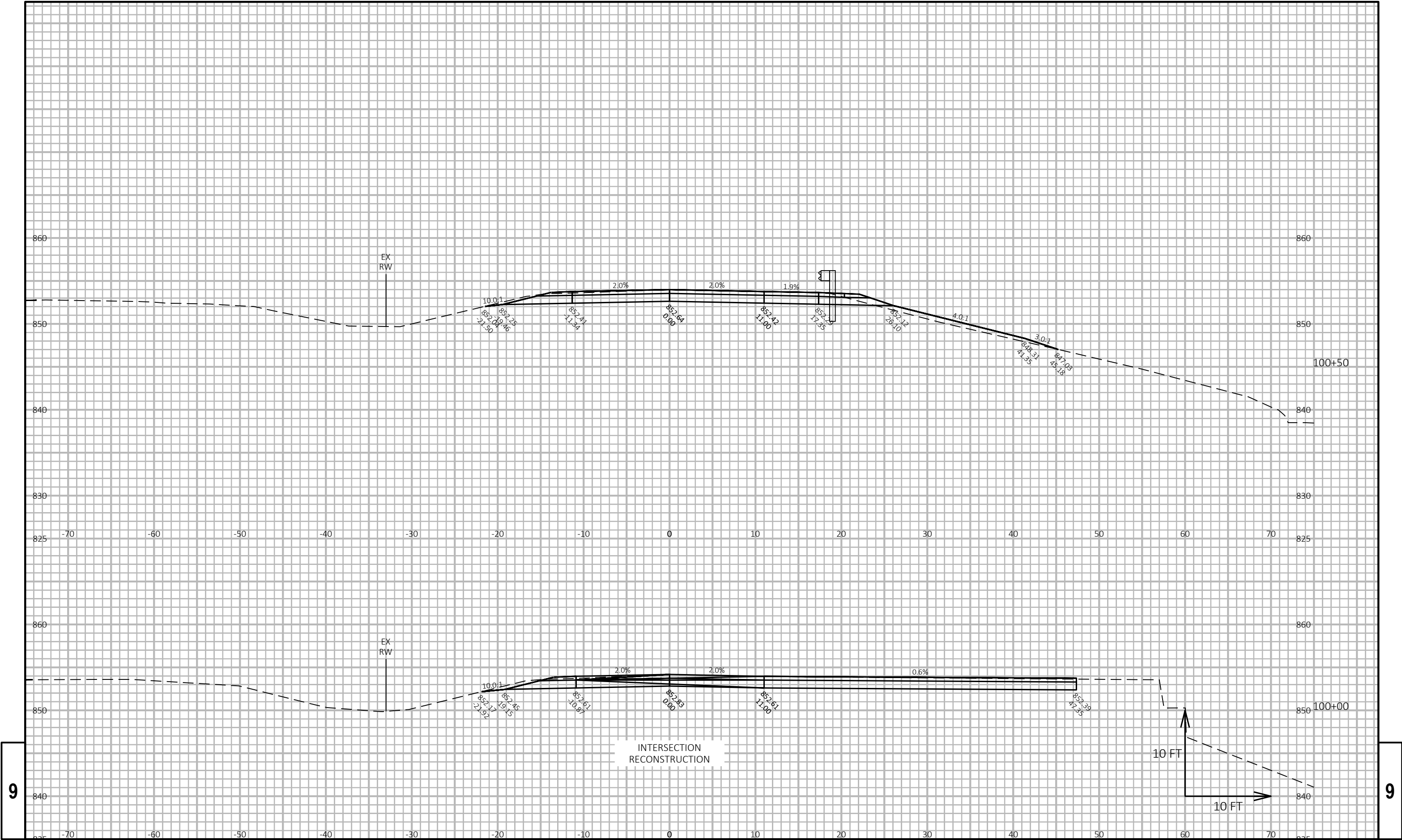
STA 11+18.83
END CONSTRUCTION
MATCH EXISTING

INTERSECTION
RECONSTRUCTION

GAP FOR BRIDGE
STA 9+22.75 - STA 10+82.25

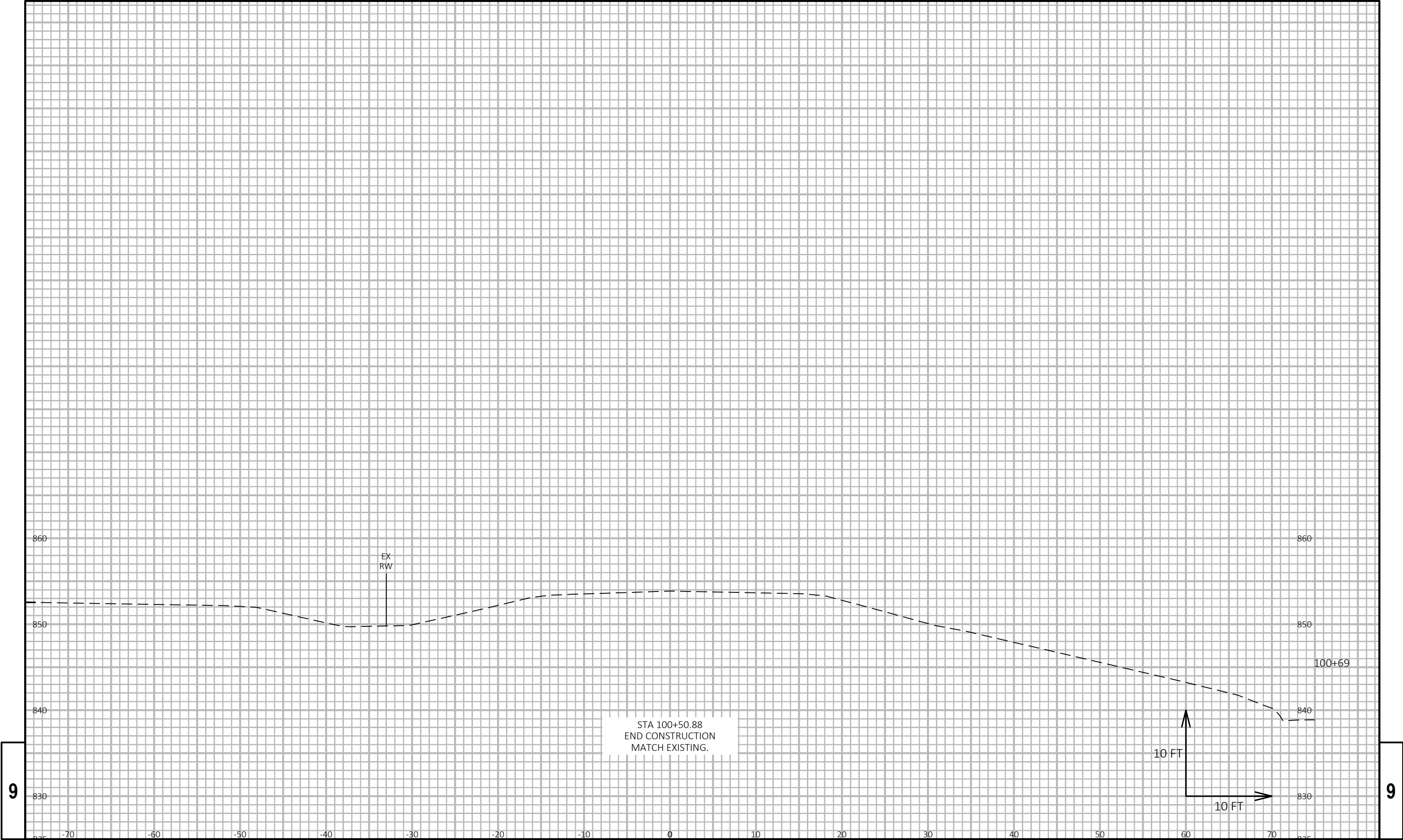






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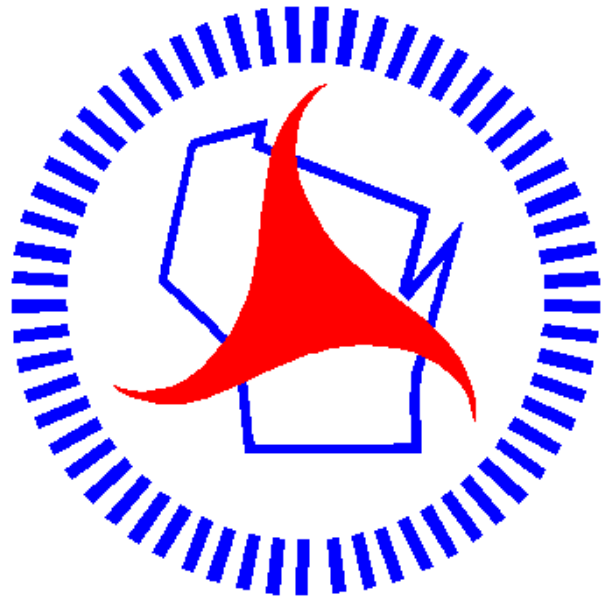
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Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions through innovation and exceptional service.

<http://www.dot.wisconsin.gov>